Textile World

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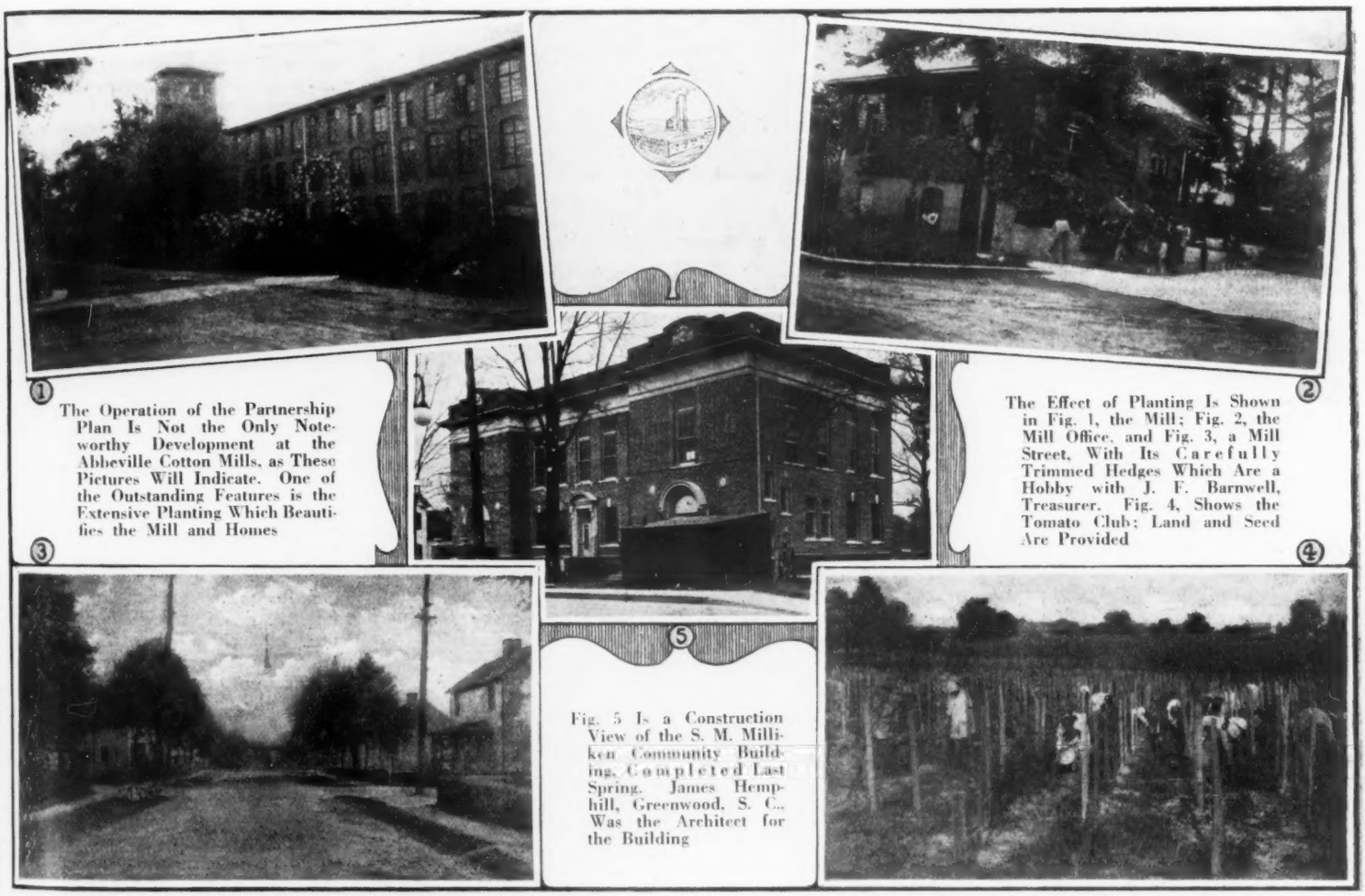
A Real Partnership Plan Operating in the South

Application of Employe Representation and Profit Sharing at the Abbeville Cotton Mills—Modifications Made Necessary by Conditions in That Section—Remarkable Development of Economic Education Among the Operatives—Its Operation Represents a Daring Glimpse Into the Future

FROM a historical standpoint, Abbeville, S. C., is noteworthy because there was held the last Cabinet meeting of the Confederacy. From a textile standpoint, this old town is of particular interest because the Abbeville Cotton Mills present one of the very few examples of the operation of employe representation in the South.

In the introductory article to this series an attempt was made to show that the fundamental conditions of the Southern cotton manufacturing industry rather precluded extensive development along this line. Consequently it is remarkable to find in successful operation in one of the very oldest communities a plan more advanced than Industrial Democracy, shop committees or other well known types.

The Abbeville Cotton Mills have been operating for more than five years under a Partnership Plan with which the readers of TEXTILE WORLD are familiar, as its success at the plants of the Dutchess Bleachery, Inc., Wappinger's Falls, N. Y., and the Rockland Finishing Co., Garnerville, N. Y., has been noted previously in these columns. Its outstanding features at those mills are the equal division of profits between management and employes, after setting aside the legal return on capital invested, a sinking fund for capital and a sinking fund for unemployment; the establishment of a Board of Operatives, made up of elected representatives from the employes, and a Board of Management, composed equally of representatives from the Board of Operatives and from the management of the company, and finally representatives of both the employes and the community on the Board of Directors.



1 The Operation of the Partnership Plan Is Not the Only Noteworthy Development at the Abbeville Cotton Mills, as These Pictures Will Indicate. One of the Outstanding Features is the Extensive Planting Which Beautifies the Mill and Homes

2 The Effect of Planting Is Shown in Fig. 1, the Mill; Fig. 2, the Mill Office, and Fig. 3, a Mill Street, With Its Carefully Trimmed Hedges Which Are a Hobby with J. F. Barnwell, Treasurer. Fig. 4, Shows the Tomato Club; Land and Seed Are Provided

5 Fig. 5 Is a Construction View of the S. M. Milliken Community Building, Completed Last Spring. James Hemphill, Greenwood, S. C., Was the Architect for the Building

Application at Abbeville

It can be seen at a glance that this is no half-way plan, either of representation or of profit-sharing. But at the above-named plants it is operating under conditions that are common to all northern industries—namely, the infusion of heterogeneous nationalities, religions and ideals into the body of workers; the inevitable loss of close personal touch between the company and its employes, and the spread of radical tendencies which are gradually making some form of employe representation almost a necessity.

What about Abbeville? Here there is one race with a uniformity of ideals, intimate contact between the operatives and the general manager, who knows them all by first name and is in touch with the details of their family life, and, finally, an almost total absence of any expectation by the workers of a voice in the decisions of the company. The question naturally arises, "Why not let well enough alone?"

The answer will have to be given partly from the personal opinion of

the writer and partly from the statements made to him by J. F. Barnwell, treasurer and general manager. The same question has arisen many times in history. Abraham Lincoln, when he was planning his Emancipation Proclamation, might have been asked: "Why not let well enough alone? The slaves themselves are not clamoring for freedom. It is doubtful if they will know what to do with it when they get it." But Lincoln was looking, not at the present, but at the future. And the promoters of the Partnership Plan are gazing ahead. Call them fifty years ahead of their time if you like; no higher compliment can be paid them.

Again emphasizing the fact that this is just the personal opinion of the writer, it is possible to visualize the change which a few more generations will make in these mill folk of the South. They may not be ready for democracy today, but some day they will be clamoring for it, whether ready or not. And its gradual evolution, now going on in Abbeville, will prepare them for the proper use of the principles of democracy, and guard them against the misuse of those principles which has been a glaring weakness in practically every example of democratic government.

Outline of Representation

Fortunately the writer does not have to limit his analysis to personal surmise. From Mr. Barnwell, he got the key to the situation. Mr. Barnwell, it must be remembered, has grown up with Abbeville and its inhabitants. He knows and loves his people; he is ever ready to listen to them and help them. What is his attitude toward the Partnership Plan?

To understand his thoughts, it is necessary to mention briefly the outstanding features of employe representation at Abbeville. The Board of Operatives, composed of eleven elected employes, represents the interests of the workers in all matters pertaining to work, recreation and community life, and cooperates with the company in all things tending to promote the common good. It administers the affairs of the village; prepares and recommends an annual budget covering the estimated cost of operation of the property and activities under its direction; recommends expenditures for improvements or additions to the village; cooperates in the improvement of physical conditions and the increase of efficiency in the mill; acts as a clearing house for the presentation to the management of all grievances and claims of any employe, group of employes, or ex-employe; and has control of the administration of the sinking fund set aside for unemployment and health insurance.

The Advisory Board, corresponding to the Board of Management at the Dutchess and Rockland plants, and composed of four members appointed by the Board of Directors and four appointed by the Board of Operatives, considers all questions affecting the conduct of the mill, such as fixing of wages and hours, adjustment of claims or grievances, rules for employment, discharge, discipline, etc., and makes recommendations to the Board of Directors.

Economic Education

The most important effect of this plan, as seen by Mr. Barnwell, is the spread of economic education among the workers. Representatives of the operatives visit other plants nearby to ascertain wages paid in order to recommend any necessary adjustment in the "current market wage" which is paid at Abbeville before any profits are considered. These representatives get a first-hand view of conditions in other mills, and are able to inform their co-workers. Four of them sit in with directors of the company and get to know its actual financial status. They are told if the mill is operating at a profit or at a loss.

But the education does not stop here. Monthly mass meetings are held at which these facts are explained simply and honestly to all the employes.

Profit-Sharing

The other important feature of this Partnership Plan is the division of profits. Naturally this phase is different at Abbeville than at the northern bleacheries of the company. In the latter, goods are processed on commission and it is fairly easy to estimate profit or loss for each month. In the Abbeville Cotton Mills, where export sheetings are made principally, the extent of operation does not indicate the profits made. The condition of the selling market is the paramount consideration, and consequently profits there are now figured annually.

Furthermore, if the bleacheries do not receive work from their customers it is necessary to shut down. In the cotton mill it is possible—and usually advisable—to continue to manufacture to stock. Consequently unemployment is almost a negligible factor in the latter and the so-called unemployment fund becomes almost exclusively a sick-and-accident fund.

The operation of the profit sharing has undergone a certain amount of modification to meet these different conditions. At first it closely resembled that at Garnerville and Wappingers Falls. After the payment of seven per cent. on the capital invested and allowing for depreciation and income tax, 20 per cent. was set aside for a capital sinking fund and 20 per cent for a labor sinking fund. The remainder was divided between the management and the employes on the basis of the capital invested and the payroll respectively, which was almost 50-50. After certain minor modifications, the plan was changed to the payment of the legal rate on capital; allowance for depreciation and taxes; and division of the remainder, 75 per cent. to management and 25 per cent. to operatives.

Naturally, since the depression set in and the export market was particularly affected, there was no division of profits as profits were not made. The remarkable point here is that the employes understood the conditions and did not allow the stopping of bonuses to dampen their interest in the plan of employe representation.

Only recently the old unemployment fund became exhausted and the company proposed to the Board of Operatives the establishment of a new fund, to be formed by payment of one per cent. of their wages by the operatives and twice the amount, thus raised, by the management. This was to be non-compulsory, and naturally only those employes who subscribed to the fund were to participate in its health and accident benefits. The Board unanimously accepted the proposition and recommended it to the workers. Already over 100 workers have signed, and it is believed that at least 50 per cent. will be enrolled.

As an example of economic education, this is hard to beat. It would be interesting to know how much interest such a plan would have aroused at Abbeville before the establishment of the Partnership Plan started the operatives thinking along the lines of actual profit and loss, comparative conditions, insurance and other problems hitherto restricted to meetings of directorates.

The Basis of the Plan

The objection often made to any profit-sharing plan is that the workers share profits only, and not losses, and consequently cannot be considered actual partners. Its operation is therefore considered an economic fallacy.

The philosophy of the plan is different from this. Although the workers have no money invested in the company, they have invested their lives in it—and its success or failure means actual profit and loss on their investment.

This may sound idealistic, but the writer has seen the plan in operation at three plants and can testify that it is a practical, working ideal.

Competitive Gardening at Abbeville (S. C.) Cotton Mills. This Is Called the "Twin House," as the Operatives on Either Side Vie With Each Other in Keeping Up Their Grounds. At Present the Man on the Left Wins by a Tree

Scene on Playground at Abbeville (S. C.) Cotton Mills

Editors
Charles H. Clark Vernon E. Carroll
Clarence Hutton Douglas G. Woolf

EDITORIAL

We Believe in the Conservation and Protection of Domestic Industries

For Mobilizing Industry

THE conference held last week at the Philadelphia Arsenal between the Assistant Secretary of War and representatives of various industries, including the textile trade, may not have accomplished anything of specific nature and may not lead to any very definite results, but at least it afforded the opportunity of expressing agreement with Government officials in their belief that industry could co-operate with the War Department to much better effect than during the war for the good of all concerned.

The meeting was called with the idea of impressing upon industrial leaders the desirability, as well as necessity, of some sort of program which might be developed to provide for a more orderly and effective mobilization of industry in the case of emergency. The applause which greeted the statement of the Assistant Secretary that both industry and labor should be conscripted in time of war and that the elimination of exorbitant profits should be guaranteed was significant of the attitude of manufacturers. While the arrangement during the war accomplished this end to a degree by allowing contractors to make big profits and then taking them away in the form of taxes, it was felt that a much more systematic and effective method could be devised by mutual effort in time of peace. As stated no definite program looking to this end was outlined, yet it was very apparent that those in attendance representing industry were willing to agree to any sensible method which might be devised to accomplish this result.

A good deal of stress was laid upon the desideratum of quantity in production under war conditions, but there was a failure to emphasize the desirability of producing quality merchandise. This matter, it is believed, is most important and its development would mean much saving for the Government and for the country at large in time of war. Quality merchandise means a lessening of quantity and the accruing benefit to Government forces and to industry is a matter deserving of serious consideration in formulating plans for the mobilization of the country's industries in time of emergency.

Another point which is felt to have received less consideration than is deserving is the question of carrying through plans for improvement in equipment and in methods which are proposed from time to time through the combined efforts of the War Department and of manufacturers. So many times it is known that worthy efforts which have a legitimate basis fail of execution because those who undertake them are not able to see them through and their places are taken by newcomers whose experience in the particular line does not fit them to carry on the work begun. Remedies for such failures are difficult to propose or to carry out for they would involve considerable reorganization and elimination of red tape, both of which seem hard to effect If, however, subsequent conferences of industry with officials of the War Department or any other Government service in which a large amount of supplies is needed will bring together the minds of competent authorities on this problem it is believed it will do much to facilitate the conduct of affairs, not only in time of emergency but also in the piping times of peace.

* * *

The Future of Long Cottons

GROWERS of extra staple cottons and their organizations, including the various co-operative marketing associations, appear to be just awakening to the fact that demand does not warrant the normal premiums for which they have been holding, and that have become abnormal under existing conditions. According to apparently reliable press reports they are now engaged in a delayed investigation designed to locate the causes of relatively low prices for extra staples and have about come to the conclusion that it is due to the lack of demand for high-quality goods, and that it will be advisable to restrict the long-staple acreage the coming season.

The conclusion is based upon such incomplete and inaccurate assumptions, and the acreage reduction suggestion is so palpably designed for its speculative influence upon prices, that the sincerity of the investigators is made to appear decidedly questionable. If the advice is taken at its face value by growers of extra staples and the acreage radically reduced, there is no doubt but that somewhat higher prices will be realized on unmarketed stocks, but the givers of such advice will be very careful not to guarantee that prices of Uplands next season will be more profitable than those of extra staples. Furthermore, they will not guarantee that a radically reduced acreage in domestic staples would not prove permanently to the advantage of Egyptian, West Indian, Brazilian and Peruvian growers of long cotton.

Fortunately for spinners and for domestic growers of staples, the great majority of the latter who regularly grow extra staples are men of means who are well informed, and are not likely to allow temporary conditions to discourage them, or to influence them to plant less profitable short cottons. Even if they do not know that the world production of long staples is much more nearly normal than that of short cottons, and that shipments from Egypt thus far this season are well in excess of those for the same period of 1921-22, they should know that there is a handsome profit in extra staples at average prices of the last three months, and that, if they had been willing to meet Egyptian prices, stocks would now be comparatively small.

It is quite probable that there will be increased planting of Uplands the coming season by growers who have had unfortunate experiences with the boll weevil, but it is highly improbable that there will be any marked decrease in acreage planted with long staple seed in those sections where the soil is especially adapted for the latter. It is true that the largest and most profitable demand this season was for one to one and one-eighth inch cottons, and this is likely to be the case next season; but is is reasonably certain that there will be an improved demand for the longer staples and planters should not be misled by present relatively low prices to restrict the acreage of the latter in any radical manner.

* * *

Constructive Opening of Wool Goods

A CONSTRUCTIVE move has been made by the American Woolen Co. in pricing goods for the fall, 1923, season. The levels are not so low that the industry outside the big company must strangle profits to meet them, nor are they so high that the clothier may with any justification claim them to be exorbitant. Reports from sources close to the Company state that the average rise as compared with last year in staple worsteds is 12½ per cent, which is surely moderate when the great rise in wool, tops and yarns, over the same period, is considered. Woolen overcoatings which the trade accepts as priced on an even closer basis than the worsted suitings are, however, 20 to 30 per cent above last year's figures on similar goods. Direct comparisons are difficult because many of the lines are new.

To those of the big company's competitors who were expecting a sensational start to the new season with radical price cuts, the figures named in comparison with those expected seem high. On the contrary, to those who had studied the situation as regards stringency of raw wool supplies and the improved condition of the clothing market, the prices seemed low when compared with the best figures which might possibly have been obtained for the goods. Turning to the women's wear department of the American Woolen Co., one finds prices named on several of their repeat numbers actually 10 per cent below current trading levels among second hands, while the increase of only one of the repeats above last fall is as high as 11 per cent.

It is confidently expected that clothiers will support this offering and the other offerings which have come on the market this week, and those which are still to come. The gain in worsteds over a year ago is about 30 cents on a fabric costing $2.50, or about $1.00 additional on the length of cloth in a suit. If the consumer has to pay an advance of more than $2.50 on the retail price of a garment, one of the distributing trades stands self-indicted. The cloth manufacturer is certainly guiltless of any charge of choking trade by unduly elevating prices. The consumer will doubtless pay a $2.50 advance on a suit or a coat and be none the wiser.

Convention Committee

Will Represent S. N. E. T. Club in Entertaining National Assn.

The committee of the Southern New England Textile Club that will co-operate with other Providence organizations in entertaining the National Association of Cotton Manufacturers at their convention at the Biltmore Hotel in that city on April 24 to 26, will be headed by Albert Greene Duncan, former president of the National Association, who is now making his residence in Providence. W. S. Pepperell, secretary-treasurer of the club, will be secretary of the committee.

The other members of the committee are as follows: J. A. Atwood, treasurer, Ponemah Mills, Providence; Frederic W. Howe, vice-president Crompton & Knowles Loom Works, Providence; William M. Vermilye, treasurer Manhasset Mills, Providence; A. W. Dimick, treasurer Grosvenor Dale Co., and first president of the club; Ezra Dixon, president of Dixon Lubricating Saddle Company, Bristol; John L. Burton, agent Nashawena Mills, New Bedford; W. C. Murphy, president Providence Mill Supply Co., Providence; Henry C. Dexter, former president of the club and associated with the Fales & Jenks Machine Co., Pawtucket; John T. Balmer, general superintendent Merchants Manufacturing Co., Fall River; F. F. Woolley, agent Coventry Company, Providence and Nelson A. Batchelder, president of the Southern New England Textile Club.

Stresses "Drag" of Cotton

Bearing of This Quality on Strength of Yarn

NEW BEDFORD, MASS.—Speaking before the students of the New Bedford Textile School on "Cotton," James McDowell, cotton specialist of the Sharp Mill and allied interests, emphasized the importance of character as well as staple length, evenness and strength of fibre in raw cotton bought for manufacturing purposes. The speaker asserted that "drag" received much less attention from classers and cotton buyers than it should do, as this quality, quite as much as length and strength of fibre, has a direct bearing on yarn strength.

He stated that only about 6 per cent of the actual tensile strength of the cotton fibres in a cross section of yarn is actually effective in the strength of the yarn, the remainder being lost in the slipping of the fibres past one another. "A cotton fibre is really stronger than a drawn steel wire of the same cross section," declared Mr. McDowell, "and if it were possible to make the full tensile strength in all of the fibres effective, a piece of 30's yarn would be sufficient to bear the weight of an average man."

He explained that this is the reason why the tendency of the fibres to bind one upon another when spun into yarns is extremely important, stating that some cotton possesses this quality in a particularly marked degree.

WASHINGTON COMMENT

(From Our Staff Correspondent)

WASHINGTON, D. C., Jan. 25.

THE committee of textile manufacturers who came to Washington last week to discuss the so-called Truth in Fabric bill certainly deserve a great deal of credit. They did a good job, because they have apparently forestalled the Agricultural Bloc of the Senate from getting any action at the present session of Congress on this particular bill. Of course, the committee of manufacturers who came to Washington do not deserve all of the credit for the changed attitude in the Senate on this bill, because it is understood that members of the Upper House from states which have large textile interests are receiving a good many communications condemning the bill. All of this has brought the matter very forcibly to the attention of Administration leaders and considerable reaction has taken place during the past few days.

Senator Lodge, the majority leader in the Upper House, is not disposed to discuss the legislation for publication, but it is understood on good authority he has made the definite statement that the Truth in Fabric bill will not become law at this session of Congress. Not only does he believe that it will not become law, but he says that the bill will not even pass the Senate at the present session.

Congress has only about six more weeks in which to legislate before the present session ends, and the policy of the Administration at this time is to get definite action on the appropriation bills. So far as the Upper House is concerned, several appropriation bills are waiting to be acted upon, following which another rural credits bill will come up, and after that the general understanding is that the Administration will see that the merchant marine bill is called up and this will probably be kept the unfinished business of the Senate until a vote is taken. It is quite possible, of course, that the matter will be filibustered, but if there is any possible way of getting a vote it will be brought to an issue. It can, therefore, be seen that it will not be difficult for New England and other Senators who are interested in the textile industry to stall off any action in the Upper House regarding the Truth in Fabric bill, in spite of the Agricultural Bloc.

* * *

"Jam" in Exchange Investigation

The Federal Trade Commission, in its investigation of cotton exchanges, which it is making as a result of a Senate resolution introduced by Senator Smith of South Carolina, has run into some kind of "jam." Officials of the Commission have refused to discuss the trouble, but the completion of the report has several times been held up. However, it is understood that the work is practically completed and undoubtedly the report will be submitted to the Senate in the course of the next month.

* * *

Cotton Transportation Problems

There are a good many projects in the textile industry that need tackling and it properly handled the Government might be able to help out. At least that is the idea of some. In this connection the Department of Commerce asked the present session of Congress for an appropriation of some $500,000 for the study of domestic problems by the Bureau of Foreign and Domestic Commerce. Only $50,000 was given to the Department, which becomes available on July 1. With this $50,000 the Department hopes to start a study of domestic problems in the hope that this sum will be added to in years to come.

Part of this appropriation, of course, will be available to the Textile Division of the Department and no doubt there are many uses to which it may be put. One of the domestic problems which might well be studied by the Textile Division is that of inland transportation, particularly as regards shipments of cotton. The same rail rate prevails on cotton whether one bale is shipped or one hundred, while in ocean transportation a preferential rate is allowed on density packed cotton. Officials of the Division are not disposed to discuss the proposition, but it is generally believed that the Division is in a position to take up certain transportation matters for the trade and this new activity, if it develops, might lead to that very kind of helpfulness.

* * *

Will Tariff Be Revised?

President Harding is going to be called upon in the near future to decide whether or not he is going to avail himself of the privilege in the present tariff law of revising the rates, as set forth in paragraph 315. There is much controversy on this point and there are two schools of thought within the Tariff Commission itself. One of these factions, headed by Chairman Marvin, is apparently of the opinion that the tariff should not be tampered with even with the authority of paragraph 315, while the other faction, headed by Commissioner Culbertson, believes that changes should be made. It is this vital point which must soon come up for final judgment by the President.

This very point is of particular interest to the textile industry, because, while officials of the Commission will not discuss applications that have been made for changing the tariff rates, it is positively known that applications have been made touching the textile industry. If Culbertson has his way, and he believes that the President will back him up in his views, changes will be made in the textile schedules. While Mr. Culbertson is not in a position to discuss the matter at this time, it is known he feels that the textile rates are not properly divided and it is rumored he is of the opinion that some of the rates are higher than they should be.

As indicated above, there are two schools of thought as regards the powers given the President to change rates in the present bill. This applies not alone to officials of the Commission, but to business men who have made a study of the tariff. Uncertainty to business has been urged as one of the objections to this new power conferred on the President. Discussing this point the other day, Mr. Culbertson said:

"On the contrary, it is more likely that greater stability will result from it. Under the old system individual rates were practically never changed except as a part of a general revision. Nothing could be more disturbing to business than the long-drawn-out tariff controversy through which we have just passed. For a year and a half Congress worked on the tariff and business was held in suspense. The alternative is an orderly method of procedure by which individual rates may be changed when conditions require. Under the new powers conferred upon the President it is not necessary to await a general revision of the tariff in order to obtain relief in the case of particular rates. Those interested in the tariff should welcome a measure which affords them adequate opportunity to be heard and to have individual rates modified to meet changing conditions without the serious upheaval which always accompanies a general revision of the tariff."

* * *

Wool Tariff to the Front

A prolonged discussion on the wool tariff took place on the floor of the Senate on Tuesday, when charges were hurled back and forth between Republican protectionists and Democratic free traders. Senator Smoot of Utah lead the debate for the Republicans, while Senator Walsh of Massachusetts took up the cudgel for the Democrats.

Senator Walsh charged that the new tariff had increased the price of wool cloth to the extent of about $5 or $10 a garment for overcoats in accordance with the recent announcement of the American Woolen Company. Senator Smoot, on the other hand, denied that the price increase was due to the tariff but to the "general world increase in wool prices."

Senator Walsh in his attack called "attention to a statement in the press today which confirms claims made by the Democratic minority in this Chamber last summer that the high duties levied in the Fordney-McCumber tariff act upon raw wool would lead to a substantial increase in the price of clothing. That claim was made repeatedly by the manufacturers of clothing in this country and by the members of the Democratic minority in this Chamber. It

was denied most emphatically by leading members of the majority party." The Senator then went on reading into the *Congressional Record* some of the colloquy which took place on the floor of the Senate between himself and Mr. Smoot while the wool schedule was being debated on the floor which he claimed bore out his contentions.

Senator Smoot in his answer to Mr. Walsh said in part:

"During the discussion of the tariff bill, when the Fordney-McCumber bill was before the Senate, I stated that, as far as the duty of 31 cents per pound on scoured content of wool was concerned, there should be no increase in the price of cloth. I maintain that to be an absolute fact to-day." The Senator continued:

"The increased world price of wool has something to do with the increase. The Senator (referring to Mr. Walsh) knows they have increased, and the Senator knows they have not increased to equal five or ten dollars a suit because of any tariff or because of the increased price of wool."

Senator Walsh came back at Senator Smoot with the following:

"Either the clothing manufacturers or the woolen manufacturers are profiteering, and if they are I charge the Senator (Smoot) and his party with the responsibility, because they have increased the protective duty levied in favor of the clothing manufacturer and also the manufacturer of woolen cloth."

Walsh asked for an investigation of the rise in the cost of material, but as the debate subsided and finally ended to give way to a bill under consideration on the floor, nothing was done about any investigation.

Deprecate Labor Handicap

Rhode Island Textile Association Addresses Governor

The following communication to the Governor of Rhode Island by the Rhode Island Textile Association and adopted as a resolution by that organization under date of January 20 considers a problem prominently before the textile industry. The letter follows:

His Excellency William S. Flynn,
Governor of the State of Rhode Island and Providence Plantations,
State House, Providence, R. I.

My dear Governor:

The present situation of cotton manufacturing in Rhode Island is such as to cause serious apprehension to many forward looking citizens of the State.

For nearly a century, New England was supreme in this Industry, but as a result of the last twenty-five years of competition substantially half of the Industry is today located in the South.

At the beginning of the last decade and about the time of the outbreak of the War, there had been such a growing together of labor costs in these two sections that many manufacturers thought the original dis-

(*Continued on page* 59)

"Falsehood-in-Fabric" Bill

Carded Woolen Association Expresses Opinion About Capper Wool Goods Labeling Bill

THE Carded Woolen Manufacturers Association, 146 Summer Street, Boston, Mass., has issued an exhaustive statement, addressed to Congress and the President, analyzing and unqualifiedly condemning the Capper bill for requiring the labeling of woven wool goods to show the percentages of the different materials of which the goods are composed. The statement begins by pointing to the fact that the value of a wool fabric depends, not on whether it is made of new or reclaimed wool, but on the quality, length and strength of the fibers, the construction of the fabric, and the skill in workmanship.

False and Misleading

The Capper bill arbitrarily defines "virgin wool" as wool that has never been previously spun or woven, and "recovered wool" as wool that has been previously spun or woven. The carded woolen manufacturers compare the different kinds of Capper "virgin wool" with Capper "recovered wool," and show that many of the materials that would be marked "recovered wool" under this bill are far superior for cloth making purposes to much of the material that would be marked "virgin wool."

In view of these facts, namely, that the intrinsic value of a fabric depends on fabric construction and workmanship as well as grade of raw material, and that the Capper definitions of "virgin wool" and "recovered wool" are misleading, the carded woolen manufacturers state that it is utterly useless to attempt to reveal to the purchaser the intrinsic value of wool goods by marking the fabrics to show the proportions of new wool and recovered wool as defined by the Capper bill. Such marks would mislead the buyer of wool clothing and for this reason the statement denounces the Capper bill as "a legislative fake and fraud that should itself be branded as a Falsehood in Fabric Bill."

Capper Bill Cannot Be Enforced

The carded woolen manufacturers point to the impossibility of distinguishing new wool from recovered wool when both are mixed together in yarn or cloth, because both materials are wool, both reacting in the same way to chemical tests and having the same appearance under the microscope. Nevertheless, the Capper bill requires that false marks on wool goods shall be detected by examination and analysis in the Bureau of Standards, the analyst to certify under oath to the correctness of the percentages. If it shall appear from such certificate that the Capper law has been violated, the United States district attorney is required to prosecute the offender without delay for the enforcement of penalties, which consist of fines up to $1,000 and imprisonment up to one year.

These provisions of the bill arouse the carded woolen manufacturers who denounce them in these words:

"Can you imagine any man or woman so base, so devoid of character and sense of right and wrong as to be willing in order to hold down a position in the Bureau of Standards or the Bureau of Chemistry to certify under oath to the constituent parts of a wool fabric as determined by his or her analysis or examination, knowing that such information is unobtainable, that the certificate is necessarily a lie, and that the certificate is likely to be used to convict innocent persons of imaginary offenses punishable by fine or imprisonment or both? What would you think of such officials? What would you think of a Government that filled its bureaus with them? And what is to be thought of the slipshod legislation methods by which this Capper bill containing such stupidly vicious provisions can be reported from any Committee to the United States Senate without a word of condemnation?"

What Is Back of the Capper Bill?

The carded woolen statement next takes up the question of what is back of the wool goods labeling legislation, which is traced from the Grosvenor bill of 1901 to the Capper bill of today. The movement originated with the wool growers about twenty-

(*Continued on page* 65)

TEXTILE CALENDAR

Rhode Island Textile Association, Meeting and Dinner, Providence-Biltmore Hotel, Providence, R. I., January 29, 1923.

Second International Silk Exposition, Grand Central Palace, New York, February 5-15, 1923.

Knitting Arts Exhibition, Annual Exhibit, Commercial Museum, Philadelphia, April 2-6, 1923.

National Association of Hosiery and Underwear Manufacturers, Annual Convention, Philadelphia, April 3-4, 1923.

National Association of Cotton Manufacturers, Annual Meeting and Spring Convention, Providence-Biltmore Hotel, Providence, R. I., April 24 and 25, 1923.

American Cotton Manufacturers Association, Annual Meeting, Richmond, Va., May 16 and 17, 1923.

F. & H. Spring Style Book

The Forstmann & Huffmann Co., Passaic, N. J., is distributing the fifth volume of the "F. & H. Fabric Book" covering lines for the spring, 1923, season. It is handsomely bound in full leather and presents swatches of 19 fabrics together with samples showing the color range. The fabrics included are as follows: Twillcord, Piquetwill, Piquette, Cordine, Piquetine Superior, Milanette, Traversine, Twillcord Rayé, Covert Twillcord, Shanteen, Purltwill, Juina, Veldyne, Gerona, Preciosa, Marvella, Special Marvella, Featherweight Silk Cachemire and "4703" Silk and Cachemire Duvetyne. The spring color card includes the following 18 shades: Moth, Pandean, Natural, Cobweb, Della Robbia, Parrakeet, Moccasin, Cordilla, Cinder, Malabar, Porto Rico, Caramel, Batwing, Pecan, Corsican, Rapallo, Navy and Black.

Dixie Mercerizing Annual

CHATTANOOGA, TENN., Jan. 24.—J. T. Lupton was re'ected president of the Dixie Mercerizing Co. in the annual election of officers here today. All other officers were also returned to office. The stockholders voted an investment of approximately $150,000 for improvements and machinery. Plans announced at the meeting call for the production of the plant to be doubled by the installation of the new machinery, according to T. H. McKinney, general manager, and Cartter Lupton, Treasurer.

R. I. Textile Assn. Meeting

The fourth annual meeting and banquet of the Rhode Island Textile Association will be held at the Providence-Biltmore Hotel, Providence, R. I., next Monday evening, the principal speaker being Glenn Frank, editor of the *Century Magazine*, New York. By special arrangement members of the Southern New England Textile Club have the privilege of attending the banquet, and so many have taken advantage of the opportunity that attendance is certain to be a record.

Worcester Mfrs. Meet

The annual meeting of the Manufacturers' Textile Association of Worcester County, Mass., will be held this afternoon at the Hotel Bancroft, Worcester, and will be preceded by a dinner at which the principal speaker will be Fred W. Howe, vice-president of the Crompton & Knowles Loom Works, who will recount his experiences on his trip to Japan and China last summer.

Wool Grade Hearing Feb. 6

WASHINGTON, D. C.—The Department of Agriculture has announced that a final hearing will be held in this city on Feb. 6 by the department in connection with United States standard wool grades. The Washington hearing, of course, will be similar to the hearings already held in Philadelphia and Boston.

For Mobilizing Industry

Textile Manufacturers Confer with Army Officials on War Problems

More than fifty manufacturers of textiles and other products responded last Friday to the invitation of the Quartermaster's Department of the United States Army to meet Assistant Secretary of War J. M. Wainwright at the Philadelphia Depot, 21st and Oregon Ave., for the purpose of discussing plans for the mobilization of industries in time of war.

Secretary Wainwright told of the plans of the War Department along this line, as responsibility had been placed upon them by the Government in an effort to avoid a repetition of the loss of time and unnecessary expense experienced during the recent world war. He stated that as it was impossible to secure the permission from Congress for the Department to purchase large supplies of goods to be held in reserve, the only course remaining was to formulate definite plans with the collecting of necessary detailed information which would make it possible to set in motion the required machinery of production at the shortest possible notice.

In addition to their responsibility for securing the supply material in normal times, it was also their task to insure a sufficient supply in the event of war emergency. Plans were to be made in advance not only for the required supplies, but also the industrial organization to produce them.

He told of the organization in the War Department of a Procurement Planning Division, including a representative of each supply branch of the service. Each of the seven branches also has its planning group, with a number of officers assigned to special duty to study the various phases of the problem. An organization has been formed to adjust these various requirements and sources of supply with those of the Navy Department in order to avoid any possibility of overlapping and competition, thus handicapping production through duplicated demands made upon manufacturers.

In order to facilitate this work, he stated, the General Staff had been engaged in the preparation of mobilization plans of the military forces with a view of determining the number of men that would be required in the service. By this means estimates of the total possible requirements in the way of supplies and equipment could be made and what would be required from industrial plants could be indicated. The Department is now engaged in making a survey of these estimated requirements so to avoid any overlapping or duplication.

Secretary Wainwright also suggested that a tentative contract would be drawn up with each manufacturer to indicate just what would be expected from that plant in the event of war emergency. He stated in conclusion that he was confident of the whole-hearted, patriotic co-operation of industry under such conditions.

So. N. E. Textile Club Centennial

Loving Cup Presented to First President Dimick—Deplore Radical Legislation

THE centennial meeting of the Southern New England Textile Club, held at the Providence-Biltmore Hotel, Providence, R. I., on Saturday of last week was not only the largest in point of attendance ever held in that city, but no meeting in recent years had ever been attended by so many original members. Albert W. Dimick, treasurer of the Grosvenor Dale Mfg. Co. and first president of the club, was presented with a silver loving cup in recognition of his work for the organization, the cup bearing the following inscription: "Albert W. Dimick, Founder of the Southern New England Textile Club. From the Members, Centennial Meeting, January 20, 1923."

Protest Against Radical Legislation

An important feature of the meeting was the adoption of a resolution presented by former president Henry C. Dexter, protesting against the enactment by New England States of legislation tending to increase the cost or hamper the conditions of textile manufacturing. The resolution was seconded by George Otis Draper and was adopted unanimously as follows:

"Whereas, A large number of well-informed individuals, leaders in the various industrial activities of Rhode Island, appreciating the importance of cotton manufacturing in that state, and aware of the inroads the South is making on the supremacy of that industry in the North, have called the attention of their fellow citizens to the seriousness of the situation by the passage of resolutions, addresses at public meetings and through the press, and

"Whereas, This meeting is composed of some 300 men engaged in or associated with textile manufacturing in Massachusetts, Rhode Island and Connecticut, so that we are in a position to know the facts in the case; therefore be it

"Resolved, That we do hereby declare that the present situation is unprecedentedly serious and such as to demand the thoughtful and wise consideration of every one interested in the future industrial welfare of New England, and that there is such a material difference in the cost of manufacturing between the two sections that it is a cause of great concern to those engaged in the industry; and be it further

"Resolved, That there has been no time in the history of New England when the enactment of legislation tending to increase the costs or hamper the conditions of textile manufacturing would be more untimely or have more disastrous results than today."

The Music and Speaking

A. W. Couper, agent of the Paul Whitin Mfg. Co., Northbridge, Mass., and musical director of the club, led the community singing and was assisted by the following soloists: H. C. Coley, Howard Bros. Co., Worcester, Mass.; John T. Balmer, superintendent, Merchants Mfg. Co., Fall River, Mass., and Antonio Spencer, who rendered his old favorite, "The Old Gray Bonnet." Instrumental music was furnished by Natzky's orchestra. The after-dinner speaking, that was presided over by President Nelson A. Batchelder, was confined to reminiscences by former officers and charter members. Among the speakers were former presidents Albert W. Dimick, Henry C. Dexter and John L. Burton. Among the charter members of the organization who spoke were Vice Presidents Ezra Dixon and Fred W. Steele, Director Frederic W. Howe, former secretary Fred L. Chase and Antonio Spencer.

A telegram of congratulation was received from George E. Spofford, vice-president and general manager of the Langley (S. C.) Mills, one of the charter members. Albert Greene Duncan, former president of the National Association of Cotton Manufacturers, was among the guests seated at the head table.

The New Greens

Two New Shades Start Vogue for Others—Good Combinations

Early predictions show that green is going to continue in popular favor far into the summer months. The prestige of green was established in the early fall when two new shades were put upon the market and received such a hearty welcome by the trade and consumers that they have gradually been incorporated more and more into the lines of textile manufacturers.

These two shades were called Lanvin Green and Almond Green. They were both a neutralized shade of green, slightly tinged with blue, and particularly suited to street wear.

Many new greens have been put upon the market subsequently, and are making a strong popular appeal. These new shades together with the most popular shades of former seasons, which are still very good, can be classified generally under three headings; i.e., those particularly adapted to street wear, those suitable for sportwear, and the evening shades.

For street wear, Lanvin Green and Almond Green still figure prominently. In woolens, the Textile Color Card has introduced a Persian Green, much on the order of Lanvin, and Alhambra which is a strong green slightly tinged with blue. Eucalyptus is a deeper, duller green, which is a more or less staple color.

For sportwear, the Emerald and Jade of last season are still in the foreground. There is a new shade out called Harlequin which promises to be acceptable for the lighter sport costumes. It is a clear, strong middle green, which is dashing when used in

(Continued on page 65)

American's Fall Opening

Men's Wear and Dress Goods Attractive for New Season

The start of the fall 1923 season as disclosed by the American Woolen Co.'s opening in men's wear Monday has been made at a price level averaging 12½ per cent higher than a year ago on worsteds, 16 per cent on staple overcoatings and 20 to 30 per cent on fancy-back overcoatings.

Of the three main groups of fabrics shown, overcoatings, woolen suitings and worsted suitings trade, trade opinion is to the effect that the overcoatings are the most closely priced. When the great advance in wool during the last 12 months is considered, all lines are priced on a conservative basis and the gains in price which must be forwarded to the consumer through the clothier will probably be radical enough to check any buying movement which may develop. Sellers of suitings outside of the big company are not disturbed by the showing. In fact, the reaction is favorable for the reason that some had feared a sharp cut in accordance with the policy shown by the big company in recent seasons.

Serge 3192 at $2.67½

The pivotal serge number, 3192, is priced at $2.67½, which compares with the spring 1923 opening at $2.50 and the fall 1922 opening at $2.35. Since the spring opening, however, this number, along with others, had been advanced and the last spring figure was reported as $2.80.

There was widespread interest among the clothing trade in the opening, and it was stated that there had been 215 buyers in the company's offices up to 3 o'clock on Monday. The attractive prices named on overcoatings, a large number of which were less than $3 was a feature.

The opening covers the entire men's wear product of the big company with the exception of fancy worsteds which will be opened in the near future. It is expected that the new price level which will prevail on these goods will be proportionate to the staple worsted prices, and that they will continue to maintain their attractive values, despite talk of a return to woolens because of their lower cost.

Last Monday's offerings shows a range of price from $1.52½ to $3.15 on staple woolen suitings, and from $1.12½ to $2.85 on fancy woolens. On woolen overcoatings the range is $1.32½ to $5.95, and on worsted overcoatings $1.60 to $3.27½.

Price Ranges

Detailed prices in the different departments by mills are as follows:

DEPARTMENT 1—DIVISION A—STAPLE WORSTED.

Mill—	Price		
Washington	$1 22½	to	3 95
Wood Worsted	1 67½	to	4 62½
Ayer	1 60	to	4 00
Fulton	2 45	to	4 40

DEPARTMENT 1—DIVISION B—OVERCOATINGS (WORSTED).

Washington	$1 60	to	3 27½

DEPARTMENT 3—DIVISION A—SUITINGS (FANCY WOOLENS).

Forest	$1 12½	to	1 27½
Kennebec	1 17½	to	1 60

Oakland	1 22½	to	1 45
Onnegan	1 27½	to	1 45
Ray	1 32½	to	1 40
Newport	1 32½	to	1 45
Lebanon	1 35	to	1 55
Vassalboro	1 40	to	2 05
Anderson	1 45	to	2 00
Sebasticook	1 47½	to	1 62½
Mascoma	1 50	to	1 72½
Saranac	1 55	to	2 17½
Moosup	1 75	to	2 40
Waverly	1 77½	to	1 90
Pioneer	1 85	to	1 95
Sawyer	1 95	to	2 85
Chase	2 05	to	2 57½
Weybosset	2 10	to	2 47½
DEPARTMENT 3—DIVISION A—OVERCOATINGS (FANCY WOOLENS).			
Forest	$1 32½	to	1 52½
Lebanon	1 52½	to	2 25
Norwich	1 55	to	3 30
Anderson	1 57½	to	2 75
Sebasticook	1 60	to	2 07½
Indian Spring	1 75	to	2 75
Burlington	1 82½	to	2 22½
Mascoma	2 00	to	2 55
Kennebec	2 05	to	3 12½
Ray	2 10	to	2 32½
Onnegan	2 12½	to	2 25
Oakland	2 60	to	2 82½
Vassalboro	2 77½	to	3 37½
Waverly	2 97½	to	3 12½
Hartland	3 00	to	4 50
Weybosset	3 35	to	4 40
Pioneer	3 42½	to	3 90
Sawyer	3 45	to	5 95
Foxcroft	3 60	to	4 05
Newport	4 27½	to	4 50
Assabet	4 60	to	4 60
DEPARTMENT 3—DIVISION C—SUITINGS (STAPLE WOOLENS).			
Assabet	1 52½	to	3 15
OVERCOATINGS (STAPLE WOOLENS).			
Assabet	$1 37½	to	3 95
Burlington	1 50	to	2 15
Baltic	2 35	to	2 82½
DEPARTMENT 7—FANCY WOOLENS.			
Beoli Mill—			
Overcoatings	$4 00	to	5 37½
Wool suitings	1 90	to	3 25
Globe Mill—			
Overcoatings	4 37½	to	7 25
Wool suitings	1 95	to	3 32½
Puritan Mill—Serges	3 72½	to	5 00
DEPARTMENT 8—DIVISION A.			
Mackinaws	$1 50	to	2 60
Uniform cloths	1 67½	to	5 25
Gaiter cloth	4 00	to	5 00

Among the better known staples in Department 1 are the following with comparisons from recent seasons:

	Fall 1923	Fall 1922	Fall 1921	Fall 1920
FULTON SERGES.				
3192	2.67½	2.35	2.42½	4.50
3194	3.20	2.80	2.85	5.50
4077	3.50	3.02½	3.07½	6.10
3844	3.87½	3.32½	3.37½	6.45
WOOD SERGES.				
9713–10	2.60	2.15	2.25	4.35
9413–1	2.20	1.80	...	...
AYER SERGES.				
1814–44	3.07½	2.67½	2.75	5.50
690	2.75	2.20	2.40	4.80
WASHINGTON CLAYS.				
200	3.30	2.77½	2.85	6.02½
WASHINGTON SERGES.				
3289	2.37½	1.95	2.05	3.92½
WOOD UNFINISHED.				
9613–1	2.27½	2.90	2.10	4.12½

Women's Wear Showing

The American Woolen Co. made its offering of women's wear fabrics for fall 1923 in Department 4 on Tuesday, Jan. 23. The most extensive showing in the history of the company was presented to buyers, most of the offering being wholly new fabrics. There are 25 numbers in the offering of the popular pile-sheen coatings, ranging in price from $3.22½ to $6.37½. The Poiret twill group is made up of 11 numbers from $2.07½ to $3.05. There are three tricotines from $2.20 to $2.60, three crepes from $1.72½ to $1.85, seven Bedford cords from $1.67½ to $2.45, five meltons from $1.12½ to $1.30, seven velours from $1.47½ to $2.52½, three broadcloths from $2.20 to $2.92½, and an extensive presentation of Polaires and chinchillas in plain colors, plaids and fancy backs in an attractive range of camel-hair effects and sport colors.

Charles H. Silver, head of Department 4, stated that the policy of the company was to show to the trade the widest possible variety, so that

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Regulations for Carpet Wool Import

Provisions for Entry Under Bond Without Duty Payment or for Refund of Duty

WASHINGTON, D. C.

EVER since the new tariff bill became effective the Customs Service of the Treasury Department has made an effort to promulgate regulations for the importation of carpet wool which would be satisfactory. Recently an extensive investigation was made by experts of the commission, during which carpet and rug manufacturers were interviewed. As a result of the work, the service has just issued tentative regulations.

The tentative regulations are as follows:

In accordance with the provisions of Title I, Schedule 11, Paragraph 1101, of the Tariff Act of 1922, the following regulations are hereby promulgated governing the importation or withdrawal from bonded warehouse under bond without the payment of duty, or with refund of duty, of wool of the class covered by the said paragraph for use in the manufacture of carpets, rugs or other floor coverings:

Sec. 1. ENTRY.—The consumption entry or warehouse withdrawal shall have endorsed thereon the following notation: "Above merchandise withdrawn under bond for use in the manufacture of carpets, rugs or other floor coverings under the provisions of Title I, Schedule 11, Paragraph 1101, Tariff Act of 1922," which endorsement shall be signed by the party giving the bond.

The wool may be entered for warehouse and there remain under the ordinary warehouse bond until withdrawn for use in the manufacture of floor coverings or otherwise disposed of in accordance with law.

Sec. 2. INDIVIDUAL ENTRY BOND—PENALTY—FORM.—At the time of making entry or withdrawal of the wool for use in the manufacture of floor coverings, there shall be filed a bond, with satisfactory surety, similar to customs form No. 7561, conditioned as follows:

"Now, therefore, the CONDITION of this obligation is such, that if the said principal shall deliver to the collector of customs at said port the evidence required by law and regulations within the time and in the form prescribed, that the articles have been actually used in the manner and for the purpose entitling them to such remission or refund of duty; or that the said articles or the products thereof have been delivered to a bonded dealer or manufacturer who has accepted responsibility for producing such evidence; or in default thereof if the obligers shall pay the duties which may be assessed upon the said articles, together with any additional duties or exactions authorized by law, then this obligation shall be void; otherwise it shall remain in full force and effect."

The penalty of the bond shall be in a sum equal to double the duty provided by paragraph 1101 plus 20c per pound for each pound of wool covered by the bond.

Sec. 3. TERM BOND.—In lieu of the individual bond provided by the preceding section, a term bond may be filed with sureties satisfactory to the collector of customs and in a penal sum satisfactory to the collector. A term bond may be given by any person or firm using or dealing in carpet wool imported under the provisions of paragraph 1101 or any product thereof. Such bonds shall be submitted to the Department for approval.

Sec. 4. REFUND OF DUTY.—Imported wool of the class covered by paragraph 1101, upon which the duty has been paid while in bonded warehouse, may be withdrawn in accordance with the provisions of these regulations, and upon the production of the proof hereinafter required, the duty paid may be refunded.

Imported wool upon which the duty has been paid under a consumption entry and which is unconditionally released from customs custody shall not be entitled to the privilege of being entered under bond under the provisions of paragraph 1101, and such duty shall not be refunded.

Sec. 5. RECORDS OF MANUFACTURE.—Each lot of wool released under bond shall be marked or stored in such a manner as to identify it with the import entry so long as it remains in the original bales.

PULLING, WASHING, SORTING, SCOURING AND CARBONIZING.—In the preliminary processes of pulling, washing, sorting, scouring and carbonizing, the wool may be processed in separate lots, in which case the records shall show the quantity and identity of the imported wool used and the quantity of clean wool obtained, and if sorted, the quantity of each sort. Two or more import lots or parts thereof may be combined into one or more manufacturing or sorting lots to be thereafter identified by lot numbers or symbols, and the records shall show the quantity of wool from each import lot used in making up the manufacturing or sorting lot. The entire product of a period of manufacture may be designated as a manufacturing lot.

YARN SPINNING.—The carpet yarn spinner may trace the wool while in his possession by means of individual manufacturing lots or by periods of manufacture. In either case his records shall show the quantity of wool received by him, identifying it by import lots, if received in the condition as imported, or by manufacturing lots if received from a prior manufacturer. His records shall also show the quantity of wool from each lot used in making up the manufacturing lot of yarn or during the period of manufacture, as the case may be, and the quantity of each kind of yarn obtained, together with the quantity of loss and the disposition thereof.

CARPET MANUFACTURE.—When the wool has been manufactured into dyed yarn suitable for use only in the manufacture of carpets, rugs or other floor coverings, it shall be considered as used in the manufacture of floor coverings for the purpose of crediting the bond. The records of the carpet manufacturer shall show the quantity of wool or yarn received by him, identifying it by import lots if received in the condition as imported, or by manufacturing lots if received from a prior manufacturer, the quantities from each lot used, the period of manufacture during which it is used and the quantities of each kind of dyed yarn obtained.

ABSTRACTS.—Upon the completion of each lot or each period of manufacture, as the case may be, the manufacturer involved shall file with the collector of customs where his bond is deposited an abstract from his records showing the receipt and disposition of the wool or products thereof in the manner indicated above.

Each such abstract shall bear the following affidavit signed by a responsible officer or member of the firm: "I, ..., do hereby solemnly swear (affirm) that this document is a true and correct copy of our records of manufacture of the articles covered thereby; that the articles were manufactured from the materials and in the manner referred to therein and that no portion thereof has been or will be used by us in the manufacture of articles other than floor coverings; and that the originals of those records together with our factory will at all reasonable times be open for inspection by proper officers of the Government."

.....

Subscribed and sworn to before me this ..... day of ..... 192....

.....

Notary Public or Deputy Collector of Customs.

For the purpose of verifying such abstracts each manufacturer of floor coverings shall keep permanent records of the quantity of each kind and size of floor coverings manufactured, the period of manufacture thereof, the quantities sold and the names and addresses of the purchasers.

Sec. 6. TRANSFER CERTIFICATES.—Partly manufactured wool, including noil, may be transferred by one bonded manufacturer or dealer to another bonded manufacturer or dealer, whereupon the transferrer may be relieved of liability under his bond on account of the wool transferred, upon the filing of a transfer certificate showing such transfer, containing an indorsement signed by the transferee agreeing to accept responsibility for the use of the material transferred in the manufacture of floor coverings.

Sec. 7. CHARGES AGAINST BONDS AND CANCELLATION THEREOF.—Upon the withdrawal of raw wool it shall be charged against the bond of the party withdrawing the same, and upon the production of the proof provided for above that the wool has been finally accounted for in dyed yarn, or upon the production of a transfer certificate as provided in the preceding section, proper credit on the bond shall be given. When a transfer certificate is filed the wool covered thereby shall be charged against the bond of the party to whom it is transferred. If the latter's bond is on file at a different port, the certificate shall be forwarded by the collector to the port where such bond is filed, after crediting the bond of the transferrer.

In crediting bonds with the quantity of imported wool used, due allowance shall be made for wastes, except noil, whether they are used in the manufacture of carpet or are otherwise disposed of. Noil shall not be considered a waste, and if not accounted for in the manufacture of floor coverings, duty shall be assessed thereon on the following basis: The regular duty assessable on the wool in its condition is imported shall be distributed to the tops and noil according to their relative values. The amount of duty distributed to the noil divided by the number of pounds of noil produced will give the rate of duty per pound to be applied to the noil not used in the manufacture of floor coverings. Inasmuch as noil is a necessary by-product in the manufacture of worsted yarn, any noil on which duty has been paid on the basis above outlined may be used for purposes other than the manufacture of floor coverings without the assessment of the additional duty of 20c per pound provided by paragraph 1101.

Sec. 8. ASSESSMENT OF DUTY ON WOOL NOT USED.—If proper proof is not furnished within one year after the expiration of the bonded period that all of the wool entered or withdrawn under bond was used during such period in the manufacture of floor coverings, the regular duty shall be assessed on the portion not used.

If any such wool not used in the manufacture of floor coverings is used in the manufacture of any other article, there shall be assessed and collected, in addition to the regular duties, 20c per pound for each pound of wool so used.

Wool Trade Inventory

Stocks of unsold wool in the Boston market, December 31, 1922, showed an increase of 37 per cent., as compared with previous years, the increase being in foreign wools held in bond. Domestic wool holdings were the smallest in many years, totalling 22,005,169 pounds as compared with 29,107,000 pounds December 31, 1921. The stocks of unsold wool in the Boston market December 30, 1922, were as follows:

		Gross pounds
Domestic:		
Territory, California, Texas	10,405,540	
Fleeces (grown east of the Mississippi River and Minnesota, Iowa and Missouri)	3,573,625	
Scoured	3,651,747	
Tops	1,084,374	
Noils	1,723,591	
Pulled (in grease)	1,646,292	
Total domestic		22,085,169
Foreign:		
Class 1 and 2	5,982,258	
Class 3	4,026,855	
Pulled (in grease)	635,781	
Scoured	6,241,549	
Tops	1,217,667	
Noils	548,504	
Total foreign out of bond		17,752,614
Foreign in bond		46,477,797
Grand total		86,315,580

Shortage in S. A. Clips

Daniel S. Pratt & Co., Boston, agents for Engelbert Hardt & Co., have been advised by the latter by cable, under date of Jan. 23, that the actual shortage in the wool clips of both the Argentine and Uruguay exceeds 30 per cent. They estimate that the following quantities of bright crossbred wools have already been sold:

ARGENTINE	
To United States	35,000 bales
England	20,000 bales
Others	5,000 bales
	60,000 bales
Left unsold	8,000 bales
MONTEVIDEO	
To United States	25,000 bales
Others	15,000 bales
	40,000 bales
Left unsold	5,000 bales

Both markets remain very firm, with general demand. All arrivals are promptly sold at rising prices.

Foreign Trade Figures

Figures just made public by the Department of Commerce, Washington, D. C., show that exports in December, 1922, totaled $344,000,000 as against $296,198,373 for December, 1921. The exports for the 12 months ending December, 1922, were valued at $3,831,516,735, as compared with $4,485,031,356 for the 12 months ending December, 1921. Seasonal falling off in shipments of raw cotton account for $30,000,000 of the $36,000,000 loss in trade during November, the Department of Commerce says. The department's figures show that there was a decrease of $36,000,000 in the value of American imports in December, as compared with November, 1922.

THE PERSONAL PAGE

At a special meeting of directors of the Potomska Mills Wednesday it was announced that William W. Crapo is to retire as president of the corporation on Feb. 1, on which date William O. Devoll will retire as treasurer and clerk. John Duff was named to succeed Mr. Crapo as president and Percy L. Kent as successor to Mr. Devoll as treasurer and clerk. Mr. Kent has been in the employ of the corporation since 1897, and of recent years has served in the role of assistant to Mr. Devoll. He is also treasurer of the new Bedford Cotton Waste Co. Mr. Devoll has been treasurer at the Potomska for 25 years, has served as secretary to the New Bedford Cotton Manufacturers' Association and as president of the New Bedford Textile School.

Th. Guerin has resigned as president of D. Goff & Sons, Pawtucket, R. I., but it is not stated that his successor has been elected. J. F. Syme, superintendent of the plant, has also resigned, but will be connected with the Guerin interests. He has been succeeded by John E. Martin, treasurer of the Valley Falls (R. I.) Woolen Co. T. Guerin & Co., New York, will continue as selling agents of the Goff product.

M. Percival Whittall, president, treasurer and general manager of the M. J. Whittall Associates, Worcester, Mass., has been elected a trustee of the People's Savings Bank, that city, to succeed his father, the late Matthew J. Whittall.

Officers of the United States Worsted Corp. organized to take over the assets and liabilities of the U. S. Worsted Co., under the creditors' reorganization plan, are Myron E. Wood, president and treasurer; H. N. Fisher, comptroller, treasurer, secretary and clerk, and N. B. Davis, assistant treasurer.

Col. Leroy Springs of Lancaster, S. C., one of South Carolina's foremost textile executives, has been elected first vice-president of Springs and Shannon, Inc., a general mercantile concern of Camden, S. C.

F. J. Maley, president and manager of the Oconto (Wis.) Woolen Mills, has tendered his resignation to take effect Feb. 1.

B. H. Lichtman, head of the Progressive Silk Mfg. Co., Amsterdam, N. Y., was elected president and treasurer of the Johnstown Silk Mills, Inc., at its recent organization meeting. Edward Wells, who is also interested in the Diana Knitting Co., has been named secretary.

Josiah M. Lasell and Arthur F. Whitin, both textile manufacturers, have been elected president and vice-president, respectively, of the First National Bank of Whitinsville, Mass.

Joseph S. Mason, president of Joseph S. Mason & Sons, Westboro, Mass., has moved to New York, where the corporation has established new offices. Mr. and Mrs. Mason will live in Pelham.

W. Irving Bullard, vice-president of the Merchants National Bank, Boston, and treasurer of the National Association of Cotton Manufacturers, left his house on Tuesday for the first time since he returned from Brazil, where he suffered a serious accident. He is field marshal of the Boston "Y" campaign and went to the City Club in that city on crutches to preside at a luncheon meeting of his team captains.

Andrew G. Pierce, Jr., of New Bedford, Mass., vice-president of the American Woolen Co., Boston, was elected a director of the First National Bank of Boston at the recent annual meeting.

Several prominent mill men have been elected to offices in the Merchants' Trust Co., Lawrence, Mass. Fred C. McDuffie, treasurer of the Everett Mills, has been elected a vice-president. George E. Kunhardt, of the George E. Kunhardt Corp., has been selected chairman of the executive committee, while George H. Simonds, of the Brightwood Mfg. Co., North Andover, has been re-elected a member of the examining committee. Messrs. McDuffie, Kunhardt and Simonds; Walter E. Parker, agent of the Pacific Mills Corp.; Charles W. Walworth, of Walworth Bros., manufacturers of fancy textiles, and George L. Wright, of the Davis & Furber Textile Machinery Co., North Andover, were elected to the board of directors.

Dr. Homer Gage, president of the Crompton & Knowles Loom Works, Worcester, Mass., and Mrs. Gage plan to leave next month on a European trip.

Sydney Harwood, of George S. Harwood & Sons, builders of card feeds, Boston, sailed from New York Wednesday on the S. S. Ebro for a cruise to South America.

William Coates, Coates Bros., Philadelphia, was re-elected as president of the Philadelphia Board of Trade, at the 90th annual meeting of that body held Jan. 22.

Samuel S. Dale, editor-in-chief of *Textiles*, is convalescing at the Corey Hill Hospital, Brookline, Mass., from the effect of a major operation and his complete recovery is expected.

Clinton Smith, now associated with the Gosnold Mills Co., New Bedford, Mass., has been appointed agent of the Maverick Mills, E. Boston, Mass., and will assume his new duties about the middle of February. He succeeds Fred W. Steele, treasurer of the Booth Manufacturing Company, New Bedford, Mass., who has been acting temporarily as agent of the Maverick since Robert Burgess was obliged to resign this position on account of ill health.

L. W. Clark, general manager of the plants of the Carolina Cotton & Woolen Mills Co., Inc., Spray and Draper, N. C., was in New York for several days over last week-end. He came north primarily to see Mrs. Clark safely started on a tour around the world, she having sailed on the steamship Empress of France on Monday, Jan. 22. This particular cruise goes west via the Panama Canal and Pacific ports, spending several weeks each in Japan, China and India and visiting all the important maritime centers, returning via the Suez Canal and the Mediterranean. Mr. Clark could not get away from his plants long enough to make the entire trip but accompanied Mrs. Clark as far as Havana and will return by way of Florida east coast resorts, getting back to Spray early in February.

John E. France has accepted a position as general manager of the Crex Rug Co., St. Paul, Minn. He comes from Southbridge, Mass., and was formerly with the company.

James Murphy has succeeded James Brocklebank as manager of the Linen Thread Co. of Massachusetts, North Grafton, Mass., the latter having been promoted as general manager of the Linen Thread Co., Paterson, N. J., where he began his new duties this week.

Announcement is made of the appointment of Benjamin Duce as assistant agent of the Washington Mills, (American Woolen Co.), Lawrence, Mass., succeeding E. A. Johnson, who has been appointed agent. Mr. Duce has been with the company for a number of years as general superintendent of the Washington Mills and his appointment is in line with the policy of the company to promote from within its own ranks whenever possible.

F. L. Jepson, formerly superintendent of the Stephenson Underwear Mills, South Bend, Ind., is now associated with the New England Knitting Co., Winsted, Conn.

P. B. Mitchell is night superintendent of the Osage Mfg. Co., Bessemer City, N. C. He was formerly overseer of weaving at the Eureka Cotton Mills, Chester, S. C.

Charles Wentworth, former cost accountant at the Newmarket Mfg. Co., has accepted a position of office manager of the Great Falls Bleachery, Somersworth, N. H.

Lawrence Winder of Fall River, Mass., has accepted a position as cost accountant with Newmarket Mfg. Co., Newmarket, N. H.

William H. Hawkins, retired paymaster of the Blackstone (Mass.) Mfg. Co., after 50 years of service, sailed from New York this week on a trip around the world.

W. D. Crawford who has occupied the position of superintendent with the Loray Division (Jenckes Spinning Co.) at Gastonia, N. C., has resigned to accept the position of superintendent with the Capital Cotton Mills at Hillsdale, Ind. He will be succeeded by S. Hull, of Greenville, S. C.

William A. Ballou has become assistant superintendent of the Grant Yarn Co., Fitchburg, Mass. He was formerly overseer of carding at the Warren, R. I., plant of the Manhasset Mfg. Co.

J. A. Beecher, of Clinton, Mass., is now designer for the Riverside and Dan River Mills, Danville, Va.

A. M. Moody is now second hand in day spinning at the Thatcher Spinning Co., Chattanooga, Tenn.

C. H. Hardy is now general overseer of spinning at the Social Circle (Ga.) Cotton Mills Co.

E. W. Spradley, who has been overseer of spinning at the Gem Yarn Mills, ornelius, N. C., has resigned.

John Wooten of the Sterling Spinning Co., Belmont, N. C., is now overseer of the Linford Mills, Inc., of the same place.

Ernest Guest is now overseer of spinning for the Hamilton-Carhartt Cotton Mills, Elberton, Ga.

Mack Brooks now holds the position of overseer of carding at the Lawrenceville (Ga.) Mills.

Calvin Ousley is now overseer of spinning at the Barrow County Cotton Mills, Winder, Ga.

D. D. Golden is now overseer of weaving at the Avondale Mills, Alexander City, Ala.

William Singleton, for many years a foreman at the Leeds, Mass., branch of the Corticelli Silk Co., Florence, Mass., and Mrs. Singleton celebrated their golden wedding anniversary on Jan. 1.

Herman Schmidt has accepted the position as overseer of carding for the Plymouth (Mass.) Woolen Yarn Co. Mr. Schmidt comes from George E. Duffy Mfg. Co., Cherry Valley, Mass.

Arthur F. Caswell, formerly overseer of weaving for the Fisher Mfg. Co., Fisherville, Mass., has been promoted to the position as superintendent of this mill.

Nathan Messer has taken the position as overseer of weaving for the Hampshire Woolen Co., Ashuelot, N. H. Mr. Messer comes from Hillsboro, N. H. Francis Blake, of Danielson, Conn., is now overseer of spinning in the same mill.

William E. Hetherman, formerly second hand in the dye house for the Uxbridge (Mass.) Worsted Co., has taken the position as overseer of dyeing for the Cheshire Mills, Harrisville, N. H., succeeding Edward Talbot, who resigned after seven years of service.

A. H. Hall is now second hand in spinning and spooling at the Puritan Mills, Fayetteville, N. C. He was formerly with the Savona Mfg. Co., Charlotte, N. C.

Frank Kivist has taken the position as overseer of bleaching for the Cold Spring Textile Corp., Cold Spring on Hudson, N. Y. Mr. Kivist comes from Hudson, N. Y.

James Leach, overseer of weaving for the Cabot Mfg. Co., Brunswick, Me., has severed his connections with that company to accept a similar position with the Fisher Mfg. Co., Fisherville, Mass.

Michael Quinn, overseer of spinning for A. L. Sayles & Sons Co., Pascoag, R. I., for a number of years, has severed his connections with that company. The position has been taken by George Doherty, formerly employed at the Glengarry Mills, Oakland, R. I.

Joseph M. Doyan, formerly second hand in the spinning department for the Crown Mfg. Co., Pawtucket, R. I., has taken a position as overseer of spinning, spooling and warping for the Edwin Bartlett Co., North Oxford, Mass.

Charley Jenkins, who has held the position as second hand in the twister room of the Monarch Cotton Mills, Dallas, N. C., has resigned and accepted a similar position with the Groves Mill, Inc., Gastonia, N. C.

George Davis has accepted a position with Bolger Bros. setting up cards. Mr. Davis comes from East Downingtown, Pa.

Hugh D. Shearer, Jr., has taken the position as second hand in the finishing department for the Whitney Worsted Mills, Franklin, Mass. Mr. Shearer comes from Webster, Mass.

TECHNICAL SECTION

Finish for Lower Qualities of Bolivia

The Cheaper Grades Must Be on the Market to Supply the Demand for These Goods—To Finish Them Skilfully, and Secure Clearness, Luster and a Good Pile, Requires More Attention Than Is Needed for Fabrics Made from Highest Qualities of Yarns

IT is easier to deliver a beautiful piece of bolivia cloth when first-class stock is used throughout than where the fabric is composed of inferior grades of material. But medium or cheaper qualities must at all times be on the market and the buying public more frequently asks for the lower-priced goods of necessity.

It is the writer's opinion that bolivia of a lower grade of stock requires more attention and experience of the finisher than goods which are made of a high quality of yarn, in order to acquire a lustrous, clear and first-class raised pile. For securing these qualities in cloth made from an inferior grade of yarn it is advisable to finish the material as follows:

If possible, bolivia should not be woven longer than 40 to 50 yards on account of the weight pressing down the pile when finished. The pieces should be clear of ends and knots on the face, burled on the back, and all necessary places mended. Bolivia cloth is not fulled or milled, but a thorough scouring is required in which care should be taken that the water is not warmer than can be comfortably borne by the hand. A bolivia piece felted in washing or dyeing cannot be called bolivia.

Scouring the Pieces

Before scouring the goods should be tacked selvage on selvage with floating face threads inside. It is also of great importance that the goods be delivered clean to the dyeing, that is, free from any accumulations from scouring, so as to avoid refinishing and unevenness in shade.

It is advisable to wash the pieces as follows: Mix in a tank holding 2,000 gallons:

5 ounces soap to 1 gallon = 625 pounds of soap.
2 ounces soda ash to 1 gallon = 250 pounds of soda ash.

Fill the tank two-thirds full of water and boil two to three hours. After this length of time all is well dissolved. Fill the tank up with water and let it cool off, which will take overnight.

Do not put too many pieces in the washer. In the common type of machine which is in use in many mills, four pieces will be the right quantity of goods. After the pieces are coupled at the ends and are ready for scouring, add from the above cold liquor about 20 pailfuls. Let them run about half an hour to forty minutes, when most of the dirt and grease should be extracted and the dirty water can be run off. Then the pieces are rinsed for about ten to fifteen minutes.

Add from the above soap liquor about three to four pailfuls and after several runs add one pailful of cold water in which is dissolved by constant stirring two quarts of Paroxan (one pint for each piece). Thereafter, during the washing process a good effect can be observed. This scouring process without addition of steam and water takes about one hour. After that time start rinsing off by using cold water for about one hour and a half.

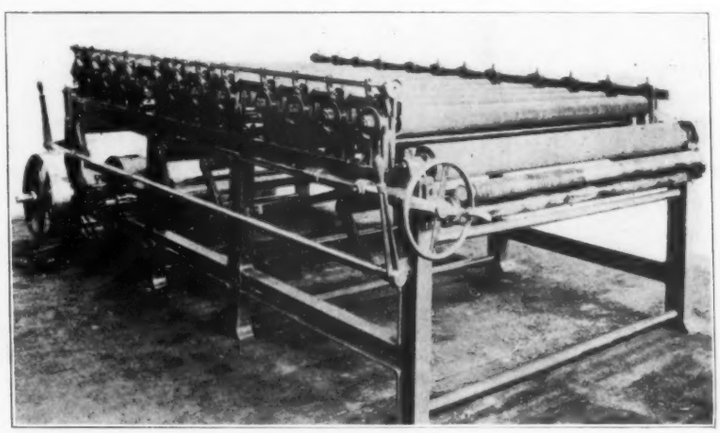

Fig. 1.—Velour Raising Machine

To be sure of getting rid of every trace of grease in rinsing off the soap, make a test with litmus paper. If the red litmus paper changes to blue it is a sign that the pieces are not free from alkali. A still better test can be performed by catching the water on the outlet of the washer in a glass and adding a few drops of 4 to 6 per cent. phenolphtalein solution. If the water does not appear to be light red the goods are clean.

Cutting the Floated Filling

The pieces are carbonized in 4 to 5 degrees Be. sulphuric acid solution and neutralized in soda ash solution. After a test has been performed with blue litmus paper for the acid, the pieces are passed through the vacuum extractor and go to the napper, on which eight to twelve runs or more are given, as necessary to tear open the floated filling.

If a very long cover is obtained, the pieces are dryed on a drying machine and given to the shearer for topping off. After this process they pass to the vacuum extractor again and are taken over to the gig, the gigging continuing until the floated filling is cut clear through to the foundation of the weave. Now the pieces are put on an up-and-down gig, running two to three times in the same condition, afterwards allowing them to run three to four times in full water. At the last run they are wound on a wooden roller, then on to the cylinder of a wet steaming machine, where it is of great importance that the cloth be rolled very tightly in order to obtain a high luster.

Steam according to the quality of the piece from six to ten minutes with 30 to 35 pounds pressure. If the strength of the goods can endure more, which can be determined after the first piece is completely finished, the steaming process for other pieces can be increased in time and pressure with an advantage to the luster.

Wet steaming machines of various makes are equipped with a cold-water system. Where this arrangement is at hand cold water under pressure is passed through the piece until it is cold throughout. The piece is run right side over a rotary brush and stretcher which are placed between the two cylinders, and then led to the other cylinder to give the entire piece, or rather the other end, a second steaming.

Following the completion of the steaming process the piece is run again over the brush, which is set to run backwards or forwards, and then on to a wooden roller where it is allowed to remain twelve to twenty-four hours, before delivering to dye house.

Piece Dyeing

For dyeing, the pieces should be tacked selvage on selvage with the floating face threads inside. After dyeing they are extracted by a vacuum extractor. Before they are taken to the up-and-down gig, it is advisable first to dry and examine for shade in order to avoid a return to the dyehouse after being completely finished. This is particularly important in bolivias as every operation lessens the firmness of the material. If one is sure of good results after dyeing, the pieces are passed direct from the dyehouse to the up-and-down gig, from which the cloth after three to four runs in full water is wound on a wooden roller and allowed to stand four to six hours or overnight, thereafter passing through the vacuum extractor for drying, and then to shearing.

Before shearing, the pieces are passed through a brushing machine which has a steaming pan attachment for the purpose of laying the hair in the right direction. The nap should be sheared off carefully and gradually until the desired length is acquired, although the shearing should not as yet be as short as required by the finished piece. For bolivias there are shears in use which are provided with file-cut cylinders which are especially adapted for this style.

After the pieces are finished up to this point it is customary for some finishers to take the material to a velour raising machine, then to the dryer, then to final or finished shearing, after which the goods are ready for delivery. This is a simple bolivia finish. But for obtaining a first-class bolivia finish the treatment from the above-mentioned point is as follows:

Treatment for Superior Finish

The nap is pressed down and allowed to remain in that condition for some time. After this the goods are taken to the velour raising machine. They are then treated on a press with high pressure under simultaneous steaming of the face of the piece, then taken to an open dry steaming machine, there enclosed in a cotton cover, steamed with pressure, rolled up and allowed to remain standing until cooled off. After this, the goods are taken to the vacuum extractor, wound on a wooden roller and de-

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[No. 402]

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Technical Section—Continued

livered to the velour raising machine.

Various types of velour raising machines are in use. Fig. 1 shows a largely used type. On the machine shown at Fig. 2 the nap is raised by one or two rotating wire rollers. Both types are in use, either separately or together.

Where the cloth enters both machines there is a roller covered with short wire (such as is used on chinchilla machines) and provided with a brake which is attached in order to give the material a certain necessary tension. Where the cloth leaves the machines a draft roller is attached

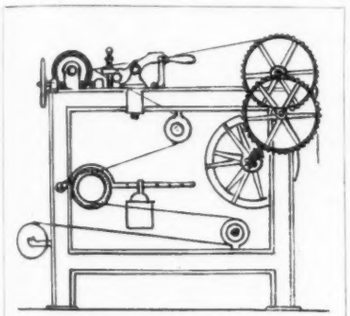

Fig 2

with a perforated metal covering which grips the cloth. Too much tension causes dappled goods and it is up to the operator to get the correct tension.

It is common practice to raise the nap on dry material, but this method does not give a firm standing pile as on extracted goods which first pass to a velour raising machine mounted in front of the dryer, from which the cloth is led directly on to the dryer. It should be observed that it is of advantage when the raised nap stands somewhat backwards rather than straight, as during drying the nap always has the tendency to lay back, and in the method advised it keeps just the right stand. On leaving the dryer the pieces should be separated, so that a number of pieces will not lie on top of others, and delivered to the shearing.

The finished shearing should be done without using the brush, although on the last run the brush may be lightly set to give the material a lightly brushed face. This is of advantage for the last operation of rolling up the pieces for delivery in order to preserve the pile. After the so-called finished shearing the goods are slightly steamed. The procedure which has been described gives a cloth which is clear, lustrous and has the characteristic indentations, not too sharp, but in the right degree.

Want Fumigating Plant

NEW BEDFORD, MASS.—Owing to the congestion in the port of Boston which is holding back consignments of Egyptian cotton destined for New Bedford and vicinity, mill men and importers are again considering the advisability of locating a fumigating plant in this city, so that it would be possible to make direct shipments.

Value of Dye House Vigilance

Some of the Results That Follow Laxity—Locating Unevenness in Goods

SOME time ago a certain mill located in one of the eastern states was experiencing considerable trouble in getting uniformly level shades upon the grade of fabrics they were making and dyeing in their own dye house. They seemed to be quite unable to secure evenly dyed sets from the kettles. Nor were they able to assure themselves that any two successive kettles would match or even come close in shade; at least, sufficiently close so that they could be used without previous sorting.

According to a statement made by the management, the mill had resorted to all expedients that had suggested themselves, or that were suggested by outsiders, but without satisfactory results. Matters did not improve and conditions either remained at a standstill or at times seemed to go backwards. From all accounts the situation at best was discouraging. Finally, and after all else failed, the mill group gradually became convinced that the trouble must be with the dyes used, and with that idea uppermost in their minds resolved that a change in the source of supply would be necessary. Being convinced that that was really the trouble, they promptly filed their complaint with the parties from whom they purchased.

Now it is well known that dyes may vary, that mixtures may not have been as thoroughly "mixed" as they should have been. It has even been known that accidental errors have been made by the dye people in preparing their various mixtures, which in some instances are not discovered until the dyer has proceeded with his work and noted a difference in shade, or some other palpable defect. None of these conditions was noted in this will, other than the irregularities previously mentioned, but still they were convinced that the trouble was with the dyes.

Irregularity in Cloth

In due course samples of the dyed goods, together with samples of the dyes used, were very carefully tested and examined. The fabric was found in many instances to have been very uniformly colored from one end of the piece to the other, but on some of the pieces spots and dark patches were observed varying in size from that of a nickel to that of a man's hand and oftentimes larger. These patches did not appear in any regular place, but were likely to be seen anywhere, though usually on one side of the cloth.

One phase of the complaint made was that the sets of pieces showed irregularity in that some were darker than others, although of an even shade from end to end. This seemed to be a puzzler. Another complaint cherished at the same time was that some of the sets dyed showed no spots or dark patches, yet some of the pieces appeared to be dyed a slightly darker shade towards one end, while the other end matched well with all the other pieces in the set and against the standard sample. On the whole the condition of affairs was serious, and to the people in the mill baffling.

In due time the "trouble man" appeared at the mill gate armed with a letter of introduction and was admitted. Promptly a conference was held with the various heads of departments to discuss the situation with the visitor, when all the points were gone over more or less fully. Later a journey through the mill was made, winding up as usual in the dye house, that far-famed place where all troubles in textile mills originate.

An outsider under such circumstances does not enjoy the most pleasant sensations, especially where a definite opinion has previously been formed as to the cause of the trouble. Consequently it becomes a matter of exercising the utmost diplomacy to gain, if possible, the good will and confidence of those with whom he is temporarily associated, and to endeavor to obtain definite facts as to just what leads to the trouble. This is not always possible. However, after going over the processes through which the pieces in this particular dye house passed, it seemed from the outset that the trouble originated in the dye house; but where the future was relied upon to divulge.

Overloaded Kettles

The dye kettles were of large size, of the ordinary type with quadrant-shaped bottom. They appeared to be clean and provided with an ample supply of both steam and water. The outlet plugs were large and easily operated.

In casual conversation with the dyer is was ascertained that the mill was running pretty full, plenty of orders ahead and with continuous delivery of goods to the dye house for coloring. The dyer, who by this time had become frank in his attitude and ready to give information, admitted that the management expected a daily delivery of a definite number of pieces. This number was so large that in order to comply it became necessary to overload the kettles far beyond their rated capacity, and to such an extent that there was not sufficient dye liquor to work the goods in properly.

To successfully dye any class of textile in the piece means that there should be a sufficient volume of liquor, not only to saturate the goods, to "float" freely. In order to do this but also to allow room for the pieces the volume of the bath should be maintained at such a level as to permit from two and one-half to three gallons for each pound of cloth. This proportion was not obtained arbitrarily, but is the result of many years observation by practical dyers both in this country as well as abroad. In this mill, however, this simple rule appeared to have been overlooked.

Later, the experiment was made of increasing the volume of the dye bath, but without decreasing the number of pieces to be dyed, having in mind the daily output required, with the result that a much better dyeing was obtained and all the pieces were of one shade.

Steam Supply Pipe Clogged

Regarding sets of pieces, a few of which were found to be dyed somewhat heavier than others in the same set, it was believed that this difficulty might have been due to an uneven distribution of steam from the supply pipe. When one of the kettles was emptied and washed out steam was slowly admitted, and by carefully looking over the edge it was noticed that the greatest amount of steam entered the kettle from the central part of the large perforated horizontal supply pipe, while but little steam was noticed coming from the openings near the ends of the same pipe.

Here, then, was a possible source of some of the trouble complained of. If so, it reflected the desire of the mill to keep up its output without taking any time to make repairs, if cleaning clogged pipes is to be regarded as "repairs." After a while, however, a mechanic was obtained who removed the "inverted T" pipe from one of the kettles, unscrewed the caps from both ends, and poked a long stick through the pipe to remove whatever it contained. The mass of "muck" that was dislodged from both ends was more than sufficient to fill a galvanized pail.

This "muck" consisted almost entirely of short bits of yarn and fragmentary masses of loose fibre that had been sucked back into the pipe as the steam in it condensed after each "blow." Of course these masses of fibre could not be blown out through the small perforations back again into the dye liquor on account of the rough edges around the small holes inside the pipe. When this steam pipe was replaced in the kettle, the distribution of steam was equal from one end to the other.

This condition is not uncommon; it is to be found in many dye houses, and should be given closer attention than it receives. The effect produced is heavier shades on the pieces where there is a greater flow of steam on account of local overheating, while where the steam is less, the temperature in the bath is relatively lower and of course the dyeing does not proceed quite so rapidly.

When the inlet pipe was replaced, and dyeing recommenced, the bath

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Technical Section—Continued

was observed to come to the boil more evenly and the effect of the steam was noticeable at both ends of the kettle as well as in the middle. No differences could be seen in the wet pieces as they were passing over the roller but later, when they were being washed and dryed, the shade was identically the same on the entire set and from end to end.

This result vindicated the belief that was expressed concerning unequal steam distribution, and led to instructions to the mechanics to remove the steam inlet pipes from the remaining dye kettles and clean them, and also to the kettle hands to report to the head dyer whenever any pipe showed that steam was not being admitted freely through all the holes.

Soiled Undyed Goods

Troubles were not yet over, however. The "spots and patches" previously referred to were constantly appearing on the finished goods. Just how they managed to get there was a mystery, but there they were and too prominent to be overlooked. Sometimes the shaded patches extended from selvage to selvage, and up to nine or twelve inches in width. Other spots and patches varied in size and seemed to be irregular in outline. In passing through one of the warehouses where there were a number of bins or compartments for pieces in the gray, it was noticed that on some of the bolts were unmistakable marks of men's shoes, as though they had been used as stepping stones. These footprints, as they were then believed to be, and later proved, were made by some of the workmen around the place climbing over the pieces to find a nice soft and comfortable spot where they could eat their noonday luncheon and finish with a siesta.

As can be imagined these footprints actually consisted of a small amount of persistently adhering floor dirt, consisting of damp dye ooze from the wooden dye house floor and mill grease from everywhere. These marks, upon being followed through the scours, were found to be in most instances difficult of removal with the result that they appeared with greater or less prominence in the finished goods, according as the dyed shade was light or dark.

The broad patches extending across the pieces were found to be the result of workmen dragging the gray pieces over the floors from the bins to the scouring machines. The floor dirt was thoroughly ground into the goods, and owing to its nature could not be scoured out, and left its mark permanently.

Of course the mill people were surprised at the presence of these blemishes; did not know they were there in the goods and even ventured the opinion that they would be quite removed, first by the scour and later in the dye bath. To make sure of this and to definitely assure those interested, including above all the dyer, one of the most prominent heel and sole imprints was marked by a thread and the piece passed through the two processes. After that particular piece was located the following day, the telltale footprint was quite discernible.

Mixed Yarn

This mill was not free from that disagreeable source of trouble for which no one appears to be directly blamable, namely, mixed yarn. Several pieces of goods were located that were found to be woven from two kinds of filling yarn, which was not apparent while the cuts were yet in the gray. After scouring, however, it was noticed that the two portions of the piece had different shades.

It seemed to be no one's business to look after such defects and report them to the bosses, and apparently the bosses overlooked such minor affairs in their eagerness to keep the output up to the maximum. The scour machine man gave no attention to such matters, since as he stated, "his job was to scour, and not concern himself with other men's business." One of these pieces that had been made of two kinds of filling, was dyed in a batch with other pieces of cloth, and as was to be expected came out with two shades.

This mill is not unusual, although fortunately the number of such is in the minority. It is not the purpose of this article to criticize any mill that persistently encounters difficulties of the kind related, but it does seem that there is something wrong with the conduct of its affairs that allows conditions to get the best of it.

It has been repeatedly stated by numberless writers on mill topics that the making or unmaking of dyed textiles is in the dye house. While full credit must be given to the weavers and finishers for their part of the work, yet in the summing up it is the dye house that "produces the goods." Opinion generally prevails among mill men that in the majority of cases involving dyed goods, where anything is wrong with the finished fabric, the dyer is among the first to be consulted for an explanation.

Insufficient Scouring

Where the dyer does not have oversight of the scouring of pieces that ultimately find their way to the dye house, he must take them as they are delivered. Should they not have been thoroughly washed, and he gives them another rinse, time is lost at the expense of the dye house output that ought to be charged to the scouring department. Few mill men appreciate the necessity of scouring followed by a good rinsing afterwards.

In the mill above referred to, it was regarded as an extra expense to keep the pieces in the scours one minute after an arbitrarily set time for the goods to be removed. Owing to the presence of grease found in some of the pieces, due to insufficient time allotted for scouring, it was suggested that weaker soap scours be used, and more time permitted. This

Oakite in open kier rids cotton hose of oil stains

LUBRICATING oil picked up on the knitting machines gave this mill considerable trouble until they started using Oakite in the kier boil.

The straight alkali formula used in the past had no effect on the lubricating oil. The result was that they were having many rejects in the pairing room, and they either had to re-run the kier boil or throw the load into the black dye vat. They estimated the cost of this extra handling to be $17 a load.

The ability of Oakite to emulsify the mineral lubricating oil absorbed by the cotton hose during manufacture is only one of the several important benefits introduced in this mill. Discoloration caused by kier stains and caustic burns is entirely avoided because Oakite in the kier makes possible the use of a lesser amount of caustic and yet results in a cleaning strength greater than where caustic alone is employed. And what is considered by this mill as the most important improvement is the softer feel and whiter tone found in the cotton hose after it comes out of a kier containing Oakite.

Write for our booklet "Wet Finishing Cotton and Wool with Oakite." It contains many facts about the use of Oakite in bleacheries and mills that may be of value to you in your own work.

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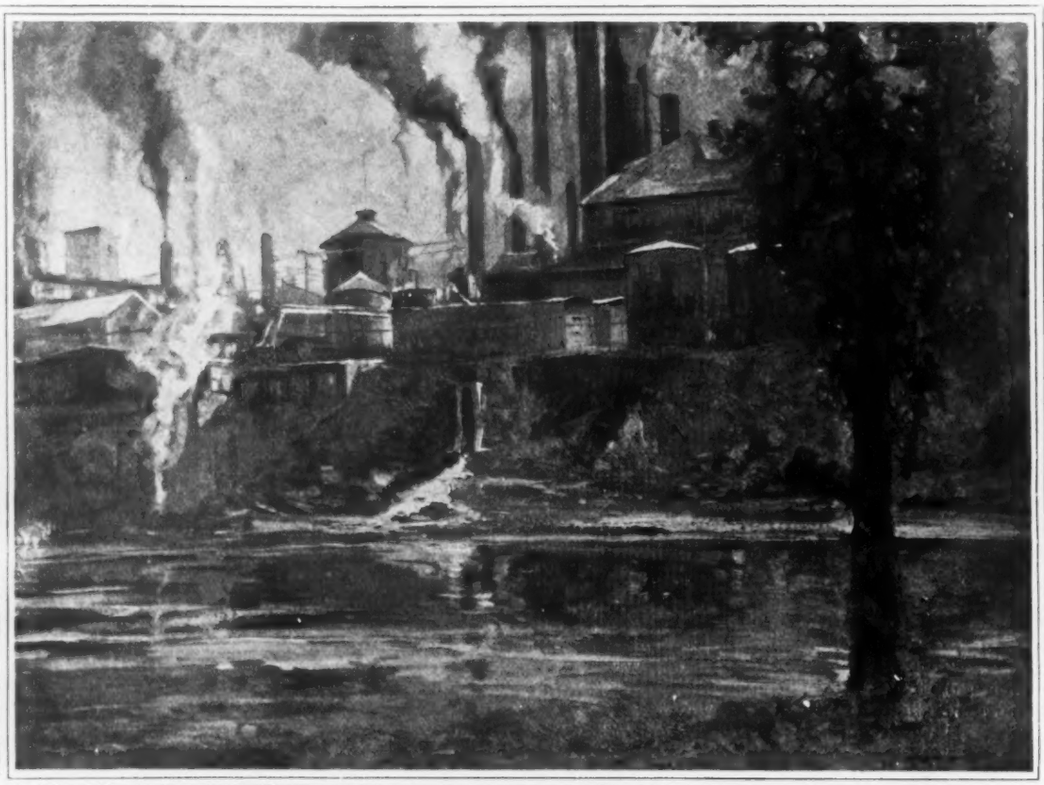

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Technical Section—Continued

suggestion acted as a bomb in the camp, bringing at once the reply that output would thereby be curtailed. The reduction of output per machine was admitted, but the counter suggestion was made that a few additional machines would even up the situation.

Shortage of Trucks

The production of uniform fabrics implies the use of uniform material and a close oversight of the manufacturing operations. Where a small mill is working full and every department is pushed to the maximum, or where one department is not sufficiently equipped with machinery or help to keep up the normal demand of some one of the departments ahead, defective results and an increased number of seconds will be the rule rather than the exception.

In one mill a shortage of trucks was noticed, resulting in a needless waste of man power in transporting goods. In such a case there is always present the risk of soiled pieces. Handling white or gray goods is a matter that deserves much more attention than is usually given to it.

Uneven dyeing may result from several causes. As previously noted a too "short" dye bath is frequently responsible, while the injudicious adding of the dissolved dye to the bath in too great a quantity at one time, or of too great concentration, may be the cause. This is generally the result of hurry.

Commencing dyeing at too high a temperature is likewise an error. Some less experienced dyers entertain the thought that any unevenness in shade is to be rectified by prolonged boiling, whereas the dyeing should proceed at a relatively lower temperature with gradual additions of fresh dye to the bath, and fixing the dye on the goods "at the boil." Dye, as a rule, should only be added to the bath as the goods take it up from the liquor, thus insuring level shades.

On the whole, most causes of unevenness in piece goods may be located in the mill by proceeding carefully and in an orderly manner, and noting every stage of all the processes through which the goods pass, being careful to form no definite opinions beforehand and to take nothing for granted.

Continuous Dyeing Machines

First Two Boxes Only Should Be Used for Sulphur Black Dye Solution

Technical Editor:

Can sulphur blacks and colors be successfully dyed by using in one run a 5-box continuous machine? If so, how many yards per hour can be dyed by each 5-box machine? Assuming that each box has a net capacity of 350 gallons (that is, after the volume of the guide rolls and steam pipes is deducted), how much dyestuff, alkali and sulphide (concentrated) in the case of dyeing blacks should be kept constantly in solution per gallon of dyebath while dyeing? How strong should the chrome bath be and should it be kept acid? How often is the chrome bath run off? If the chrome bath is used too long, even though constantly replenished by additions of fresh chrome, does not the chrome bath become dirty due to a black precipitate caused by the action of the chrome on loosely adhering color? When making long runs is it not advisable to work the dyebath without using salt?

(4656)

A FIVE-BOX dyeing machine may be used for dyeing sulphur blacks, but only the first two boxes are to be used for the dye solution; the remaining three boxes can be used for washing, chrome after-treatment, and washing, in the order named.

Regarding the chrome after-treatment, this is desirable since it effects a more complete fixation than is accomplished by a simple passage through air, resulting in greater permanence of the dyed color. This chrome treatment can conveniently come after the first wash. With a 5-box machine the air treatment may be omitted, although it is desirable for the better quality of cotton fabrics, such as linings, etc. This chrome bath should be made up with

Bichromate of Soda.....3 per cent.
Acetic Acid, 8 degrees.....3 to 5 per cent.

and kept hot during the passage of the dyed cloth; it need not boil, but the temperature should be about 160 degrees F. This bath gradually becomes fouled with loose dye, and should be run off at intervals, depending upon its condition. As long as it is comparatively clear, and chromium salt is present as noted by the color, it is safe to work. Chromium and acetic acid must be present.

The following brief article bearing on this subject contains matter of importance. It refers directly to the use of a three-compartment machine, but the principle of working is identically the same as for a 5-box machine.

Sulphur blacks are conveniently dyed in continuous machines most satisfactorily, and where output is desired it is the ideal way to operate. The machines should be constructed of wood or iron, but in either case the rollers over and under which the cloth travels must be made of iron. No brass or copper rollers or other fittings are to be used in the machine. Good and efficient squeeze rollers are to be fitted for each dye compartment, and also to the wash box. These rollers may be wood, iron or hard rubber. The means for their adjustment should be positive acting and always in good condition so that the dyer can regulate the pressure on the cloth, and equalize it from selvage to selvage.

Typical Machines

Typical cotton cloth dyeing machines for sulphur blacks and blues are shown in the outline sketches on page 35. Fig. 1 shows a machine having two dye boxes, the second one of which is separated from the wash box by a space of such width to permit mounting a series of rollers to carry the cloth up and down. This airing space is to permit proper oxidation of the dyed cloth before it enters the wash. For some blacks, the oxidation is very important, since it materially reduces or completely prevents subsequent crocking of the dye.

Fig. 2 shows a heavier type of machine in which the airing or oxidizing rollers are placed over the machine, the

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Technical Section—Continued

space they would occupy being taken by an additional wash box. This latter dyeing machine is well adapted for all shades from light grays to black and is operated without any difficulty.

Maintain Uniform Bath

In dyeing piece goods with sulphur blacks, the important point for the dyer to keep in mind is to maintain his dye-baths of uniform composition, and to remember that for each one hundred pounds of dry cotton cloth passed through the liquor, very close to one hundred pounds or 12½ gallons of dye liquor are removed. Therefore this amount of removed liquor must be restored as the cloth travels through the machine. In straight dyeing, that is, when a fixed weight of cotton is dyed in a fixed volume of dye liquor, dye is actually taken up, leaving this bath proportionately weaker, but in dyeing piece goods in a continuous machine the strength of the bath is made so great that this weakening of the liquor is at once offset by the occasional additions made to restore the working level. This method of working in kettles as illustrated in the sketches means that the heating of the dye liquor is to be done by means of closed steam coils.

For black dyeing on piece goods, the dye bath is made up with its proper constituents in quanties based upon ounces or pounds per gallon. This at once establishes the "starting bath," but as the dyeing proceeds the restoration of working conditions is made by adding the dye and other items in quantities calculated in percentages on the weight of the cloth being dyed. This is shown by the following working formula from practice, which is based upon ten-gallon units of liquor.

Sulphur black	2 pounds
Sodium sulphide crystals	2 pounds
Soda ash	6¼ ounces
Soluble oil	2½ ounces
Common salt	2 pounds

Of course, these quantities may be slightly modified according to the fullness of shade desired, which is partly controlled by the speed at which the cloth passes through the baths.

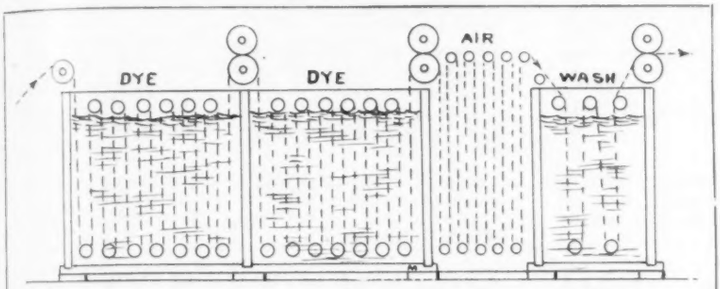

Fig. 1.—Typical Cloth Dyeing Machine for Sulphur Blacks and Blues

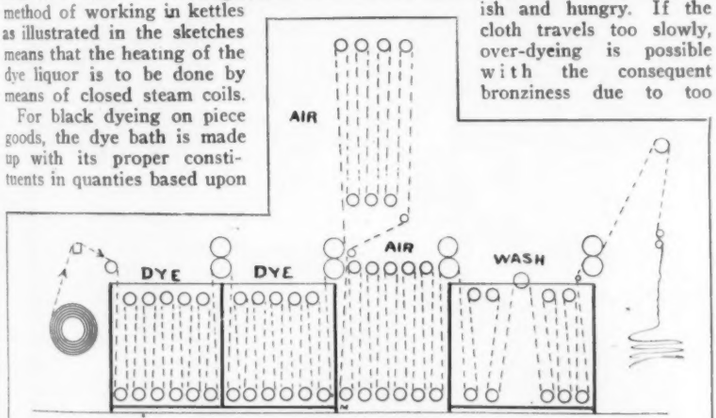

Fig. 2.—Heavier Type With Oxidizing Rollers Placed Over the Machine

Common salt (or Glauber's salt) must always be present in the bath.

For restoring this bath, the additional quantities to continue producing the same shade are

Sulphur black	6¼ per cent.
Sodium sulphide crystals	6¼ per cent.
Soda ash	⅛ per cent.
Soluble oil	⅛ per cent.
Common salt	2 per cent.

In dyeing, the temperature of the bath is brought to the boil, and the travel of the cloth so speeded that only one passage through the two boxes is necessary. A passage of from 16 to 22 yards per minute works satisfactorily, with an actual immersion of the cloth lasting from 3 to 4 minutes.

Speed of Cloth

Too great speed through the dye liquor is not to be recommended, since sufficient time is to be allowed for the cotton fabric to take up the dye properly. If the cloth travels at considerable speed, even though the bath be near boiling, actual dyeing does not result, and the finished pieces will appear grayish and hungry. If the cloth travels too slowly, over-dyeing is possible with the consequent bronziness due to too much color. This causes a result that is extremely difficult to correct, although attempts are frequently made by giving such bronzy goods a passage through a sodium sulphide bath and washing, and if necessary a passage through a weak dye bath.

From the dye bath the cloth, being well squeezed, is exposed for a short oxidation in the air, when it at once enters the wash box where the excess dye liquor and any loose color is removed. The practice in some piece goods dyehouses is to add a small amount of sodium formate or sodium acetate to the last wash water.

Temperature Regulation

Maintenance of uniform temperature of the dye bath when dyeing sulphur dyes is essential, since with some of this

(*Continued on page* 95)

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is not due to perfume. (Yes, perfumes *are* used in some bulk soaps.)

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QUESTIONS AND ANSWERS

Under this head we undertake to answer, free of charge, to the best of our ability, questions pertaining to textile matters received from any regular subscriber to the TEXTILE WORLD. Inquiries should give the fullest information and data possible. In the case of damage to material, a sample should be sent. In this way answers can be given which will be of immediate technical value to the correspondent and to others in the same line. Inquiries pertaining to textile processes, machinery improvements, methods of management, the markets, etc., are especially invited as well as any legitimate discussion on the views expressed. All inquiries must be accompanied by the name of the person inquiring, not for publication, but as an evidence of good faith. The identity of correspondents will not be disclosed.

If the question is not of general interest to textile readers and involves expensive investigation, a charge covering the cost may be made, of which the inquirer will be advised before any expense is incurred.—EDITOR.

Weaving Terry Towels

Technical Editor:

Referring to your reply on page 45 of the January 13 issue, in reference to weaving terry towels, I think the real trouble is that the weaver, when a thread breaks, unlaps it from the beam instead of tying it up. As a result, some threads are one lap ahead of others in coming off the beam, and have a tendency to be caught under the other threads. I have had some experiences along this line on both terry and union towels. L. B.

Unevenly Dyed Mercerized Goods

Technical Editor:

We are enclosing herewith a sample of fabric, and upon examination you will notice considerable unevenness and streakiness, which is causing us a great deal of trouble. We are unable to determine whether this is due to the dyeing, mercerizing or some other cause, and we will appreciate it if you will advise the reason for a condition of this kind. (4698)

The general appearance of this piece of cloth indicates that the difficulty complained of is due to the incompleteness of the mercerizing process, or to the imperfect neutralizing of the caustic alkali afterwards. This kind of defect does not show itself until the goods have been dyed, and consequently it should be the aim of the mercerizer to make sure that his solution of caustic is of full strength, and that the cloth to be treated is thoroughly saturated with it.

It is well known that mercerized cotton takes up more dye than plain cotton, consequently evenness of mercerizing is essential so as to reduce the chance of selective dyeing. We suggest that the cloth be thoroughly boiled-out and dryed before immersion in the caustic alkali, and that the strength of the mercerizing liquor be maintained at the proper degree.

Owing to the dense character of this cloth, there is every reason for allowing ample time for both the alkali treatment and the washing to be as complete as possible, particularly after the goods have come from the alkali. A most thorough wash is desirable after the acid treatment.

Bronze Spots on Hosiery After Redyeing

Technical Editor:

Will you kindly give us your opinion as to what is the chief cause of bronze spots on cotton and mercerized hosiery after having been redyed black? We don't seem to have this trouble on first runs, but on goods that have to be redyed we frequently have this result. (4699)

Your trouble is due entirely to an excess of dye in the bath. Nearly all dyes, but particularly blues and blacks, possess the property of showing up bronzy when too much of the color is used. The only remedy is to make use of less dye, or what amounts to the same thing, a more dilute solution. It is to be remembered that mercerized cotton has the property of taking up comparatively more dye than plain cotton, and is therefore more easily overdyed.

Not being informed as to the kind of black dye you are using, whether direct, diazotized, or sulphur, we are not in a position to advise you as to the treatment necessary to remove this bronziness, other than to state that if it is a sulphur black, try passing the goods through a bath containing some sodium sulphide. This will dissolve some of the black from the goods, after which they are to be again redyed, this time with a small quantity of color. If the goods were dyed with direct dyes, then the excess color is to be removed, first by a good boil with soap, and if this does not remove it, the goods are to be given a light stripping, followed by a good wash, and then redyed.

Trouble in Finishing Silk and Wool Goods

Technical Editor:

Enclosed find sample of silk and wool satin-face crepe for your examination. We would appreciate any information you could give us. We want to know who is at fault, the dyer or the manufacturer.

For instance, we will take seven pieces, of which six pieces are of the satin-face style, and one piece of a plain face silk and wool style. We proceed to boil-off the seven pieces in a 30 per cent. olive oil soap solution, then wash the pieces off well in the padding machine. The washing process includes three separate baths of weak solutions, respectively, ammonia, hot water, then muriatic acid. Each bath is heated at 180 degrees F. to cut any soap that might be in the goods. The pieces are sent to dry and all satin-faced pieces are bagged face side on inside, then commence to dye. The dyeing is with Glauber salt and a weak solution of sulphuric acid and the desired colors. The satin-faced pieces appear as the enclosed sample. Besides, there are pieces that show rub marks in a spot-like manner, and in still other places there are these rub marks which show a hole completely through the spot. Now the other plain style of one piece that we dyed in the same lot appears to be perfect throughout the piece in this respect.

We always seem to have some trouble with satin-faced pieces, and very rarely have any trouble in any respect with other styles, including pieces which have a fancy silk and wool crepe with artificial silk designs woven in the pieces. (4700)

The trouble with these goods may be in the dye house, or in the manufacture of the goods. Manifestly, the defect is a distortion of the fabric as well as abrasions. Such defects are to be searched for in the mechanical operations. Abrasions are the direct result of friction, the rubbing of pieces together or against the sides of kettles, etc. Of course, two pieces that rub against each other will cause a roughening of the surface of both, and where this occurs the cause is to be removed.

In the larger piece examined, there appear to be streaks, which when examined seem to result from direct tension applied to the goods, and from the statement that they have been washed in a padding machine, we are inclined to look for the cause of this trouble there.

Wherever there are rub marks in pieces, be sure that there is undue friction, and the first care of the dyer or finisher is to locate the particular operation where it can occur and correct it.

The chemical treatment to which these goods are subjected appears to be proper. The boiling-off as well as the dyeing is not to be criticized. The goods are clean and well dyed, so far as level shade is concerned. We regard the defects to be wholly mechanical.

Finishing Cotton Twine

Technical Editor:

We are enclosing herewith a small sample of cotton wrapping twine and would appreciate advice as to how this twine is finished. We are anxious to learn the materials used in the size. (4668)

Comparing the sample with other samples of twines, the dressing on which is known, leads us to believe that it has been dressed with a mixture of glue, water, starch, stearine and perhaps a small amount of soap. Such a mixture has been made with the following:

Water	5 gallons
Starch	1 pound
Stearine	5 ounces
Glue	4 to 5 ounces
Soap	2 ounces

These ingredients are boiled together, first softening the glue in some of the water, then making a paste of the starch with another portion of water, and also dissolving the soap in another portion of water. These solutions are then mixed, and while being boiled the stearine is added and stirring continued until the latter has been thoroughly incorporated.

The yarn is impregnated or coated with this dressing by passing it slowly or rapidly through it while contained in a trough in which is partially immersed a roller to depress the yarn. For very high gloss twines, Japan or carnauba wax is to be substituted for the stearine.

Properties of Mercerized Fabrics

Technical Editor:

Can you give me some information regarding the relative strength of a mercerized fabric and an unmercerized fabric of the same construction? How about the life of a garment made from mercerized and one of unmercerized fabric? As regards wear? As regards washing in an ordinary wet wash laundry? Would the mercerized fabric stand the wet wash laundry handling and chemicals any better than a regular fabric? Will it stand mildew any better? About what is the cost of mercerizing cloth per pound? Of yarn per pound? Can cloth or yarn be mercerized without bleaching? I would thank you if you can give me any information relative to the above or advise me where to look for it. (4702)

These questions could form the basis of extensive research. Authorities on mercerization agree that cotton fabrics, if properly treated during the bleaching and mercerizing process, show by actual test 15 to 20 per cent gain in tensile strength over unmercerized fabrics. The writer would say that the average life of a mercerized fabric when made up into a garment is also longer than that of an unmercerized fabric. However, this, as well as the question of wear, cannot be stated in definite figures.

We do not think that the mercerized fabric would stand up any better than the unmercerized fabric in the average wet wash laundry handling, nor would it stand the action of chemicals any better. This also applies to the question of mildew. Mildew develops to practically the same degree on either mercerized or unmercerized fabric under the influence of moisture and in the presence of mildew spores.

The cost of mercerizing cloth averages from 1 to 2c per pound, depending on the method and process in vogue at the point where the mercerizing is done, as well as being governed to a great degree by the method of recovering the caustic wash water. This applies approximately on yarns as well.

Cloth or yarn cannot be fully mercerized without first boiling-off or scouring in water to make the yarn or fabric absorbent. There are a great many concerns mercerizing fabrics in what is known as the "gray state." These fabrics have been simply singed and treated with diamalt or some such product to remove sizing ingredients and they are afterwards washed and then mercerized. Cloth treated in such a manner does not show a really fully mercerized appearance.

Cockled Goods

Technical Editor:

Enclosed find two pieces of goods with which we are having trouble because of cockling. I am crabbing these goods at 190 to 200 degrees. They are rolled up and let stand over night. You will find one piece which I dipped in hot water. But they still have a slight cockle after sponging. I do not understand why this piece of goods should cockle. You will note tight threads in the warp. (4696)

The trouble is caused by insufficient crabbing. To set a piece of goods thoroughly with two kinds of stock, or a cockly weave, it is necessary to run them on both rolls at a boil and see that they are kept at a boil all the time they are running on. The top roll should be put down at the start of the run with a little weight on to keep them from shifting. When all wound on the goods should be run at least a minute with the roll down. This treatment will keep the cockles out of almost any goods and also prevent watermarks.

Electricity in Wool Carding

Technical Editor:

I am experiencing some trouble with static electricity on wool cards and would like to know if the use of alum on wool is injurious to the stock. (4675)

The use of alum on wool would not affect the wool fibre injuriously but it might cause trouble in manufacturing processes. Alum is an acid salt and therefore might have a corrosive action on card clothing. It might break up emulsions used for oiling stock. It is soluble and will wash out of stock and goods, but in some cases it might act as a mordant with some classes of colors if not thoroughly scoured out of the goods. The best way to overcome static electricity in textile processes is by humidifying mill rooms or by the use of such a device as the Chapman electric neutralizer.

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Nothing but olive oil foots, caustic soda and pure water is used in TEXOLIVE. Incidentally, as the country's largest importers of olive oil for soap making purposes it is only natural that we should get the cream of the olive oil foots.

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NEW MACHINERY AND PROCESSES

1922 Model Nasmith Comber

Built in Two Styles, Double and Single, or Twin-Six and Single-Six

AFTER exhaustive mill tests covering two years, John Hetherington & Sons, Ltd., Manchester, England, have placed on the market a 1922 model Nasmith comber, embodying numerous improvements which offer advantages to cotton manufacturers. It is made in two styles, double and single, or twin-six and single-six, with twelve heads and six heads, respectively.

The first Nasmith twin comber was made and set to work in the mill in 1915, and is still running satisfactorily. But it was soon apparent that many details could be much improved. The war, however, put an end to further development until 1919, when work was resumed on the machine. The 1922 model, now under notice, was the outcome of this trial and has been subjected to thorough, practical tests under mill conditions to make sure that every detail is perfected and that it will do what is claimed for it.

It is two quite independent combers, built back to back on the same framing, driven by a single belt, although each side may have its own belt, if desired. Each side may stop or start independently of what the other side may be doing.

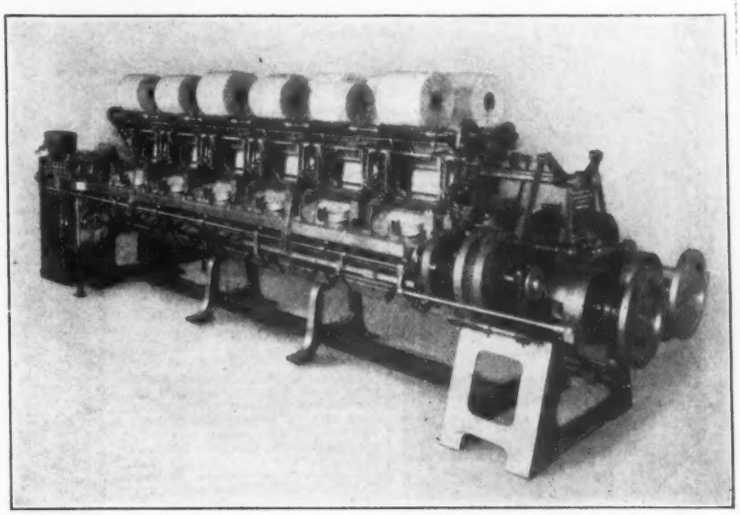
Such an arrangement offers some advantages. There is great economy of floor space, a point of some importance where building and equipment are expensive. The daily distance traversed by the operative is much reduced, as there are no back passages to attend to. The comber setter can make every adjustment single-handed in full light, standing upright in front of the machine, except that of the brush and doffer, which is infrequent.

The Nipper

The nipper in the original Nasmith comber is in the best critical position for dealing with heavy laps; that is to say, it is not quite close to the front rows of cylinder needles but near enough to let them easily open the matted lap left behind the top comb, and when this has been done and the top comb waste carried forward the nipper gradually approaches very close to the fine rows. This has been adopted in the new machine, but with the difference that no matter how the nipper is set in relation to the detaching rollers, near to or far away, its relation to the cylinder needles never alters.

This important result is achieved by the simple patented device of carrying the pivot on which the nipper swings on a lever pivoted on the boss of the cylinder shaft bearings. Each of these levers is connected by adjusting rods to a setting shaft having a graduated sector on the end of it to indicate the amount of adjustment.

Once all the nipper pivots have been set in line, they can all be moved simultaneously by slightly turning the setting shaft in its bearings, the effect being to alter the distance between the nipper and the detaching rollers; and since the pivot is moved round the cylinder concentrically, no alteration in the distance of the nipper from the needles takes place. The disposition of the nipper rocking shaft is such that no change takes place in any of the movements of the nipper, or of the feed or the top comb.



1922 Model Nasmith Comber; Twin Six Type

Another result of the arrangement is that as the nipper is set further back from the detaching roller, it is also raised higher above it instead of being lowered as in the original machine, and so supports the lap better behind the top comb and increases the cleaning power without having to set the nipper so far back that long fibre is taken out and the waste increased. In other words, the same cleanliness can be obtained with less waste, or greater cleanliness with the same waste, and, incidentally, a heavier lap can be used and good results obtained.

Movement of the Nipper

In the original Nasmith the lip of the nipper has to move compulsorily 2 inches while all the heavy parts, being above the lip and more distant from the pivot on which the nipper swings, move much more than 2 inches.

In the 1922 model the movement of the lip of the nipper can be reduced to 1⅝ inches, and the lip being the most distant point from the pivot, all the other interior parts lying between the lip and the pivot move much less than the lip, instead of much more. The heavy top comb is taken off the nipper altogether and swings on its own fixed pivot quite independently of the nipper, but controlled from the nipper shaft. The power required to rock the nipper in the new machine is about one-quarter that needed to control the nipper of the original machine and there is not the same tendency to sway the whole machine at high speed.

The Top Comb

The top comb, as stated, is quite independent of the nipper and can be set in a standard position, and no other adjustments affect its position. It can be lifted from and replaced on the machine without the use of any instrument whatever, which is useful for dressing the needles and to facilitate access to the nipper. It is unnecessary to remove it to clean the needles. It is lifted and drawn forward into a notch, where it hangs in a convenient position, a slight push sufficing to cause it to drop back automatically into position.

Variable Weighting of Rollers

The great advantages of the patented variable weighting of the leather covered detaching rollers may be summarized as follows: Increased life of the leather covering of the top rollers, almost complete abolition of strain on the driving mechanism when starting and reversing the rollers, reduction in the loss of long fibres into the waste and the power to work much heavier laps when required.

The weighting is so arranged that there is very little pressure on the top rollers when starting to back off and reversing the roller, the strain on the driving mechanism being enormously reduced. It is only when the forward motion is well started and detaching has begun that the pressure begins to come on, and gradually increases until the end of the detaching operation. For the brief instant at the finish of the detaching process the pressure can be much greater than is possible when it remains constantly on, and this increased pressure at that moment contributes to a clean separation without long, straggling fibres which usually go into the waste and make it possible to draw a much heavier lap through the comb than is otherwise possible.

Positive Grip Nipper Feed

The patented positive grip nipper feed consists of a secondary nipper sliding within the main nipper. At the appropriate moment its top jaw closes tightly on the bottom jaw and positively grips the lap with great tenacity. During the detaching process it feeds rather more lap forward than is required and ends its forward movement, gripping the lap much nearer to the nip of the detaching rollers. To this fact is due a reduction in the waste without in any way affecting the quality of the product.

When the detaching is ended, the feed nipper withdraws the surplus feed back into the main nipper before the latter closes. It then opens and moves back to take a fresh grip further up the lap. With the new feed the character of the staple or the weight of lap are immaterial, and exceptionally low waste and high productions become possible.

Detaching Roller Driving

In the patented detaching roller driving mechanism, the cam and sector are retained, but the clutch is dispensed with and a much more silent mechanism substituted, which takes less room and does not require to dwell when disengaging so that the contour of the cam is made smoother and a slower start and a longer time given to the backing off, avoiding the abrupt brusque movement.

The bringing out of the new 1922 model does not mean that the 1900 model Nasmith comber is to be discontinued. It will be manufactured as heretofore and together with the new 1922 model will be supplied to American and Canadian mills through the Boston office of John Hetherington & Sons, Ltd., by their agent,

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RECENT TEXTILE PATENTS

BRAIDING machine. 1,441,782. John B. Chace, South Attleboro, Mass.

COTTON, Mercerizing. 1,441,740. A. Nelson, West Marton, England.

COTTON unloader and cleaner. 1,441,577. J. L. Hart, Chickasha, Okla.

DYEING animal or mixed fibres. 1,441,240. P. Ounertz and A. Peters, Berlin, Germany.

DYEING machine. 1,441,898. P. A. Wagner, Jersey City, N. J.

FABRICS, Composition for treating. 1,441,952. H. J. Suib, New York, N. Y.

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MILL NEWS

NEW MILLS

Cotton

*Boston, Mass. The statement contained in the columns of our last issue to the effect that Lockwood, Greene & Co., engineers, this city, will build a mill for Etablissements Eugene Marechal at Venissieux, France, was incorrect. A French concern is the engineer for this project. The machinery for this mill has been sold through the American Textile Machinery Corp., European sales agents for Saco-Lowell Shops, Whitin Machine Works, and Crampton & Knowles Loom Works as reported. This company is managed by Lockwood, Greene & Co.

Wadesboro, N. C. Subscription of $425,000 for the building of a new cotton mill here has been accomplished, a canvass having been made of the citizens of Wadesboro and the surrounding county, resulting in over-subscription by $25,000. A committee composed of L. D. Robinson, T. L. Caudle, B. M. Covington, H. P. Taylor and W. P. Parsons will secure a charter for the new mill. Ten dollars in gold will be offered as a prize for a name for the new mill. Mill homes of the most modern type will be erected. A committee has been appointed to secure a site for the mill and to negotiate with power companies to secure the necessary power. This committee is composed of James A. Leak, H. B. Allen, T. C. Coxe, W. H. Liles, C. M. Burns, F. M. Hightower, L. D. Rivers, R. B. Medley and L. D. Robinson.

*Laurens, S. C. Organization of the Palmetto Co., new textile mill, capitalized at $75,000, has been completed by the election of Ernest D. Easterby, president; H. Douglas Gray, vice-president, and Albert Dial, secretary-treasurer. At a meeting of the stockholders the following were chosen as the board of directors: George M. Wright, J. M. D. Moore, Albert Dial, E. D. Easterby, H. D. Gray, J. W. Dunklin and Clarence Kennedy. A charter for the mill company has been applied for. Fifty looms have been bought and an order for other looms, together with necessary machinery, will be placed shortly.

*New Braunfels, Tex. Planters & Merchants Mills, Inc., has been chartered by S. M. Ransopher, formerly of Boston, Mass., Max Schultz and J. H. Gilliland of New Braunfels, the capitalization being $1,500,000. Its plant is under construction and is expected to be completed next month with an equipment of 10,000 spindles and 350 looms, driven by electric power from hydro-electric development, the investment to be $600,000.

Wool

Roswell, N. M. George F. Blashek, Route 1, Box 16, is laying plans for the establishment of a woolen batting manufacturing plant.

Knit

Hartford, Conn. The United Sweater Mills, 100 Village street, this city, has recently opened to engage in the manufacture of sweaters, etc. I. C. Ottenberg, of this city, is the owner of the new enterprise.

*High Point, N. C. The Robbins Knitting Co. is now under construction, with one story about completed. When finished it will be two stories, brick with steel window framing. The building is 60 x 100 feet, with additional building 36 x 40 feet for dye house, boiler room 16 x 32 feet. It is hoped the building will be ready for machinery by March 1. The company will install 120 knitting machines, 25 loopers, 5 sewing machines.

*Reidsville, N. C. A new stock company with a paid-in capital of $150,000 is being organized to establish a large knitting mill here. W. L. Pannill, for several years one of the officers of the P. H. Hanes Knitting Co., Winston-Salem, has resigned his position with that company and will devote his entire time to the organization and management of the new company. He has associated with him Robert Graham, also of Winston-Salem, who is an experienced textile man. For many years Mr. Pannill was connected with the Mayodan Mills in this county, and for the past eight or ten years he has been with the Hanes company. A Massachusetts textile firm, which is engaged in the selling end of the business, has subscribed to a majority of the stock. Mr. Pannill and his associates have taken a substantial allotment of the capital stock. An option has been secured on several different pieces of property for the knitting mill. It is planned to have the plant in operation by May 1.

Philadelphia, Pa. Collier, Kenworthy & Co., is the name of a new organization located at Leverington and Wilde streets, Manayunk, for the manufacture of novelty fabrics, including scarfs, knitted ties, overcoatings, etc. Horace D. Kenworthy is the president, and John Collier is treasurer and superintendent. They have four Raschel machines installed, using electric power. They buy 2-18s worsted yarns and art silk.

Silk

Walnut Creek, Cal. The Pacific Cellulose Co. has acquired the former local two-story plant of the Diablo Glove Works, with a six-acre tract of land, for the establishment of a new plant for the manufacture of artificial silks. The present structure will be remodeled and two new buildings erected. The company is headed by E. S. Bell, president; Dr. C. A. Schwartz, vice-president, and E. A. Schwartz, secretary and treasurer.

Philadelphia, Pa. The Wissahickon Plush Mills, manufacturing plush and velvet fabrics, are a new concern located at Cresson street and Ridge avenue, Wissahickon. A. Johnston is the president of the company and Thos. Boone, secretary and treasurer.

Miscellaneous

*Aberdeen, Md. Maryland Finishing Co., mentioned recently as incorporated with $150,000 capital by Alfred H. Osborn and associates, is understood to be the company previously noted as planned by Andrew T. Armstrong, formerly of Baltimore, where he was interested in dye and finishing works. It is understood that arrangements will be completed during January for building a complete dyeing and finishing plant, local business interests having offered

*Indicates previous mention of project.

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Mill News—Continued

a plant site and tax exemption privileges to secure the enterprise for Aberdeen.

ENLARGEMENTS AND IMPROVEMENTS

Cotton

*HUNTSVILLE, ALA. The Merrimack Mfg. Co. is completing the erection of a cloth room 100 x 100 ft., erected by mill employes, and has let a contract to Baxter Bros., for the erection of a cotton warehouse 75 x 100 ft.

*MACON, GA. Contracts to survey, prepare plans and supervise the construction of extensive mill village improvement work has been given to E. S. Draper, Charlotte (N .C.), landscape architect and city planner, by the Bibb Mfg. Co. Mr. Draper, several years ago, developed a model village for this company at Columbus, Ga. The contracts contemplate extensive improvements in both their Macon and Porterdale, Ga., settlements. Mr. Draper's plans and work will include construction of 15 to 20 miles of concrete sidewalks, complete storm drainage systems for 7,800 houses, street improvements with curb and gutters, development of parks and playgrounds, school and hotel grounds, landscape planting, and other items of city improvement. The work will be rushed, and the contracts will be ready to let by March 1, it is stated. Completion of the work is expected to take from 12 to 18 months.

*LEWISTON, ME. Additions and alterations to the factory of the Bates Mfg. Co. have been started. The buildings will be of brick, mill construction, and cost about $200,000.

*CONCORD, N. C. It is reported that the Brown Mfg. Co. of this place will make considerable additions to their plant. They now have under course of construction a number of new tenement houses.

LEXINGTON, N. C. The Dacotah Cotton Mills, Inc., are now working on the foundation for a new office building which will be 50 x 38 ft.

TAYLORSVILLE, N. C. Construction has been resumed on the plant of the North State Cotton Mills and the machinery ordered out. James Watts is president of the mill, which will contain 5,000 spindles and produce fine yarns. Arrangements have been made to operate the mills with hydro-electric power.

PAWTUCKET, R. I. A permit has been issued for the building of a new mill, two stories high, 40 x 100 ft., at South Bend and Johnson Streets, for the Pawtucket Vienna Braid Co. The new mill will cost $14,000. Excavation has already been started.

*CAMDEN, S. C. The Wateree Mills are now being run by hydro-electric power from the Palmetto Power Co. The Hermitage Cotton Mills will also change to hydro-electric power in March, it is reported.

COWPENS, S. C. The Cowpens Mills are installing some new machinery and will install more at an early date. A number of new homes are being erected and the hotel is being overhauled.

*GAFFNEY, S. C. Forty-five new toilet sets, including all accessories, drinking fountains, etc., are now being installed in the Gaffney Mfg. Co. buildings along Railroad Avenue. The work is being done by T. J. Cagle, a local plumber, who was awarded the contract some time ago. In addition to this equipment the company is having sewerage installed in all of the houses in the mill community.

*GREAT FALLS, S. C. The Minter Homes Co. of Greenville, recently awarded the contract by the Republic Cotton Mills for the construction of 215 houses for the operatives of Mill No. 3, has started unloading materials and erecting temporary quarters preparatory to beginning the erection of the houses.

*GREENVILLE, S. C. It has been announced officially that Dunean Mills, manufacturing fine goods, will erect a plant addition consisting of a two-story concrete building, approximately 136 by 165 ft. Equipment of the new building will include 10,000 twister spindles, spoolers, doublers and winders. The twisters will occupy the second floor and the remainder of the equipment the first floor. The mills will shift spoolers and winders it now uses to the new building, but the remainder of the equipment will be new. The plant addition will cost in the neighborhood of $250,000. Dunean Mills recently let a contract for the erection of 60 new employes' houses and increase in equipment was forecasted then. J. E. Sirrene & Co., of Greenville, S. C., are the engineers.

SPARTANBURG, S. C. Building permits were issued here for the Beaumont Mfg. Co. to erect a weaving shed at a cost of $75,000 and 50 four-room cottages for employes, costing $75,000. J. E. Sirrine & Co., of Greenville, has the contract for the weave shed.

Wool

PHILADELPHIA, PA. Plans have been prepared for the erection of a new plant for Beswick & Clay Co., Inc., 25th and Callowhill Streets, spinners of woolen and merino yarns. This new plant is to be located at 68th and Greenway Avenue, where the company has purchased a plot of ground 438 x 489 feet. The new plant will include a three-story reinforced concrete structure, with additional smaller buildings. M. Ward Easby, Inc., Philadelphia, is the architect in charge of the plans.

PHILADELPHIA, PA. Contract has been awarded to Wm. F. Newberry, for the erection of an addition to the plant of Wm. F. Read & Sons Co., 12th and Jackson Streets, manufacturers of worsted dress goods. This is to be a five-story building and will cost about $105,000.

THORNTON, R. I. The L. W. Peckham Co. (Morgan Mills) are making extensive alterations at their mill here. They are to install 20 broad looms and spooling and winding equipment.

MURFREESBORO, TENN. Lebanon Woolen Mills, Lebanon, Tenn., have organized a company in this city, with capital stock of $75,000, for the establishment of a branch mill for the manufacture of woolen blankets. Building operations on the erection of a plant will start at once. They will install used machinery. J. E. Edgerton is president, treasurer and general manager; A. B. Humphrey, vice-president; R. D. Powell, superintendent.

*BUNKER HILL, W. VA. Dunn Woolen Co.'s new mill building here will be 36 x 200 ft., of reinforced concrete. It will install an equipment of machinery to include 12 looms for weaving extra wide cloth, some of the

*Indicates previous mention of project.

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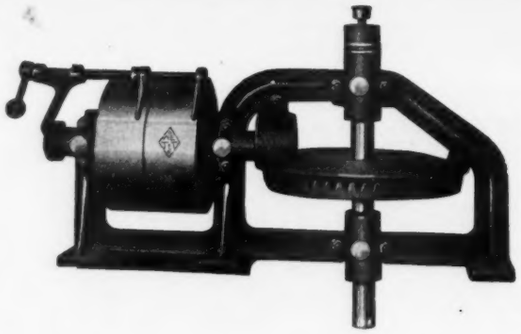

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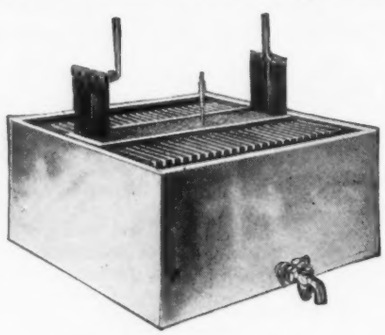
We select and recommend oils from a scientific study of mechanical conditions. Our own crude production enables us to produce oils from both asphalt and paraffine base crudes.

Our engineers are at your call. They will study your mechanical conditions, apply their technical knowledge of mill operation—TO OFFER YOU THE MOST SUITABLE OIL FOR EVERY OPERATION.

See our chart of Textile Mill Lubrication in Textile World, February 3rd.

Gulf Refining Company
General Sales Offices — Pittsburgh Pa.
BOSTON NEW YORK PHILADELPHIA ATLANTA NEW ORLEANS HOUSTON

Improvement in Bleaching Methods



With the use of our Electrolytic cells, which produce a neutral Sodium Hypochlorite out of salt water, a number of advantages are obtained, some of which are:

Saving of 25% in the amount of sour.
Saving in the amount of chlorine.
No insoluble lime deposits.
Reduction of shrinkage in knit goods.

and many others.

Guarantee.

We positively guarantee that our electrolytic cells will produce sodium hypochlorite cheaper than any other type on the market.

A suitable outfit for any use or capacity

Write for information

The Electro Chemical Co.
Dayton, Ohio, U. S. A.

CURTIS AIR COMPRESSOR

WELL-DESIGNED, with wearing parts of generous proportions. Workmanship is of highest standard. Automatically lubricated by a controlled splash system with regulatable sight feed for cylinder oiling. Furnished with air pressure unloader if desired. Eighty per cent more cooling surface than any double-acting compressor of the same capacity.

Curtis Pneumatic Machinery Co.
1630 Kienlen Ave. St. Louis, U. S. A.
Branch Office:
531 M Hudson Terminal, New York

The Foxboro Automatic Temperature Recorder Controller

is the only instrument that combines temperature controller and recording thermometer. It is invaluable for dyeing, sizing and finishing processes. Write for information to Dept. "A. T."

THE FOXBORO CO., INC.
Foxboro, Mass., U. S. A.

FOXBORO
TRADE MARK
THE COMPASS OF INDUSTRY
4879

BOILERS
OF ALL TYPES
Towers & Tanks
STRUCTURAL STEEL WORK
The Walsh & Weidner Boiler Co., Chattanooga, Tenn

STRUCTURAL STEEL AND IRON
For Every Building Purpose
THE WILSON COMPANY
Building Department
Greenville, S. C.
Branch Office, 213 Latta Arcade
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Complete Line of Mill Supplies Also

Lupton
INVESTMENT VALUE
Seaming Tables
Looping Tables
Damp Boxes, etc.
All Steel
David Lupton's Sons Co.
Trenton and Allegheny Aves.
Philadelphia

Mill News—Continued

machinery to be removed from its branch at Brucetown, Va.

Knit

INDIANAPOLIS, IND. The Indianapolis Glove Co., 430 North Liberty Street, has taken bids and will award a general contract for the erection of its proposed five-story plant addition, 100 x 160 ft., estimated to cost $225,000. Rubush & Hunter, American Central Life Building, are architects.

PADUCAH, KY. The Paducah Hosiery Mills, Eighth and Jones Streets, are planning for an addition for the manufacture of paper boxes for hosiery packing.

BROOKLYN, N. Y. The Premier Knitting Mills, Inc., 105 Meserole Street, are planning for the removal of their plant early in February to new quarters in the building at Flushing and Wyckoff Avenues, where considerably increased facilities will be provided for manufacture. The capacity will be enlarged. Sidney M. Hillman is president.

PHILADELPHIA, PA. Notice is given of the dissolution of the partnership existing between Louis Effenberg and Abraham Korobov, trading under the firm name of the Diamond Knitting Mills, manufacturers of knitted ties, Seventh and Green streets, as of January 1, 1923. The business will be continued by Louis Effenberg under the same trade name, Diamond Knitting Mills, at the same address.

WILKES-BARRE, PA. The Lycoming Knitting Mills, which began business a year ago on a small scale at Dallas, plans a new building and additional equipment.

BOWMANVILLE, ONT., CAN. The Thomson Knitting Co. is said to be planning for the installation of new knitting machines and other equipment.

Silk

*NEW HAVEN, CONN. The Wimpheimer silk mill here has been sold to the American Velvet Co. Approximately $300,000 was the financial consideration involved. The factory will be operated in conjunction with other factories of the concern.

JOHNSTOWN, N. Y. The Johnstown Silk Mills, Inc., is the name of a new concern organized here to engage in the manufacture of silk fabrics. The concern has purchased the plant in North Perry street, formerly occupied by the Bert Goldberg Co. and operations will be started in a short time. The directors of the concern are Edward Wells, A. Dennison and John M. Russell. The company was incorporated last week.

CUMBERLAND, R. I. The R. I. Plush Mills filed a certificate with the secretary of state during the past week increasing the capital stock from $25,000 to $100,000.

PAWTUCKET, R. I. The Darlington Textile Co., Hughes Avenue will erect a one-story addition to its mill, 90 x 140 ft., for which a contract recently was awarded. It will cost about $30,000.

*HOPEWELL, VA. The Tubize Artificial Silk Co. of America will have its capacity here increased 25 per cent. by Feb. 20 through installation of new machinery, now in progress. Operatives employed will be increased to 2,500. Its plant occupies a 100-acre site and recently the management purchased a complete 350-cottage village for its employes. Reports not confirmed by the management state that $250,000 is being invested for the new installations.

*Indicates previous mention of project.

Sandoz
SANDOZ ANILINE DYES for ALL TRADES

We Carry a Complete Line at All Branches

For samples and prices apply at any of our offices

SANDOZ CHEMICAL WORKS
INCORPORATED
238-240 Water St., NEW YORK
12 S. Front St., PHILADELPHIA
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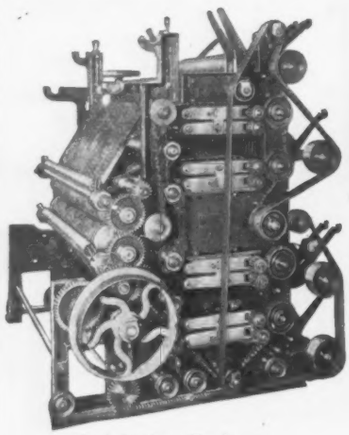
Manufacturers of

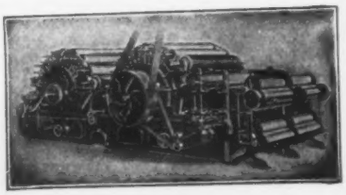
Acid
Basic
Chrome
Direct
} Colors

CENTRAL DYESTUFF & CHEMICAL CO.
Main Office and Works: NEWARK, N. J.

Established 1898



D. & F. Tape Condenser



60"x60" Double Finisher Card

360 Spindle Mule

DAVIS & FURBER MACHINE CO.

NORTH ANDOVER, MASS.

Established 1832

CARD CLOTHING

CARDING MACHINES FOR WOOLEN, WORSTED, MOHAIR, ASBESTOS, COTTON WASTE, FLAX WASTE, JUTE WASTE, SILK WASTE, AND SHODDY

GARNETT BREASTS

TAPE CONDENSERS

DOUBLE AND TRIPLE APRON RUBBS

NAPPERS FOR COTTON, WOOLEN, AND KNIT GOODS

FEARNOUGHT PICKERS

SPINNING MULES FOR ANY STOCK WHICH CAN BE SPUN ON THE WOOLEN PRINCIPLE

FULL LINE OF WOOL PICKERS, DUSTERS, TWISTERS, BOBBIN WINDERS, DRESSERS, REELS, BEAMERS, SPOOLERS, ETC.

WELL MADE WOOLEN AND WORSTED MACHINERY

Write for Catalogues

Complete Equipment

Cotton Machinery

Built by Specialists

WOONSOCKET MACHINE & PRESS CO., INC.

WOONSOCKET, RHODE ISLAND, U. S. A.

PICKER AND CARD ROOM MACHINERY

Feeders	Intermediate Pickers	Drawing Frames
Openers	Finisher Pickers	Slubbers
Conveyers	Thread Extractors	Intermediate Frames
Bale Breakers	Roving Waste Openers	Roving Frames
Breaker Pickers	Revolving Top Flat Cards	Jack Frames

FALES & JENKS MACHINE COMPANY

PAWTUCKET, RHODE ISLAND, U. S. A.

RING SPINNING AND TWISTING MACHINERY

Ring Spinning Frames for Cotton, Ring Twisters for Cotton Wool, Worsted, Silk, Jute, Flax and Novelty Yarn

EASTON & BURNHAM MACHINE COMPANY

PAWTUCKET, RHODE ISLAND, U. S. A.

WARPING AND WINDING MACHINERY

Spoolers	Reels	Spindles for Cotton and Silk
Beam Warpers	Doublers	
Ball Warpers	Banding Machines	
Skein Winders	Card Grinders	

SELLING AGENTS

J. H. Windle, Northern States and Export — Woonsocket, R. I.
J. H. Mayes, Southern States — Charlotte, N. C.

Wentworth

DOUBLE DUTY TRAVELERS

Last Longer, Make Stronger Yarn, Run Clear, Preserve

THE SPINNING RING

The Greatest Improvement Entering the Spinning Room Since the Advent of the

HIGH SPEED SPINDLE

MADE IN STANDARD BRANDS

WENTWORTH — MADE IN ALL N.R.T. CO. STANDARDS — 7 — PATENTED — DOUBLE DUTY TRAVELERS

AMERICAN NATIONAL WILSON HICKS

Trade Marks Reg. in U. S. Pat. Off.

If Your Spinning Is Not Perfect We Can Improve It

Manufactured Only by the

NATIONAL RING TRAVELER CO.

PHILIP C. WENTWORTH, Treas. — PROVIDENCE, R. I.
31 West 1st Street — Charlotte, N. C.

Southern Representatives

C. D. TAYLOR, Gaffney, S. C. — C. D. PEASELEY, Charlotte, N. C.

A Longer-Lived Jack Spool

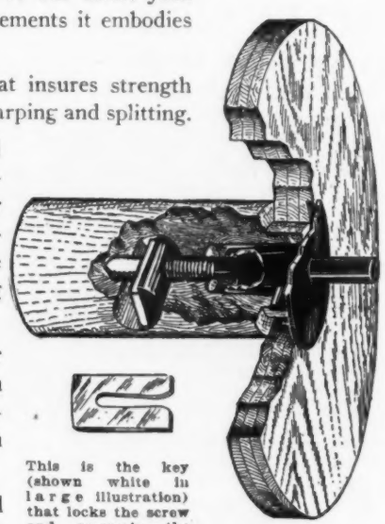
Practical mill men will recognize in the accompanying illustration of our latest Jack Spool, the many improvements it embodies over spools now in use.

Note the 3-ply head that insures strength and largely eliminates warping and splitting.

Note also the Tapered Stud fitted into a Tapered Hole in cylinder that makes a rigid bearing and prevents the Gudgeon from enlarging the hole in barrel.

A feather in the Washer fits tightly into a slot in the head and barrel, preventing the head from turning.

Because of these and other features this Jack Spool "stands up" under the severest of treatment. Ask about our trial offer.



This is the key (shown white in large illustration) that locks the screw and prevents the Gudgeon from getting loose.

Vermont Spool and Bobbin Co.

Burlington, Vermont

COTTON GOODS MARKETS

Export Markets Buy Small Quantities Only

No Recent Business of Moment—Miscellaneous Markets Buy from Hand to Mouth

A small miscellaneous export business in cotton goods is being done right along, but the total volume continues disappointingly small. Many of the markets which have for years been considered the largest outlets for American goods continue almost totally inactive. In sections of the New York market, particularly those doing business with South and Central America, it was expected that there would be a revival of general buying of cheaper goods by Jan. 15 but this has not been realized.

Sheeting Inquiries

There is no feature of moment to report regarding recent business. Inquiries were about the market within the last two weeks, understood to be from the Levant, for three-yard sheetings at 14½c., but so far as could be learned this week no business at this price has been accepted. India is dead, China has been given up as practically hopeless as a buyer of American goods, South Africa is dull, there is very little interest shown by the Philippines.

A little business has been received recently from Aden and the Red Sea district, and there has been small miscellaneous buying of a variety of goods by South America and the miscellaneous markets of Central America and the West Indies.

The Cuban Risk

Those in the local trade who have an intimate knowledge of the Cuban market, or who are fortunate enough to have a competent representative in Havana, are able to accept with safety a small volume of business from a few buyers in that country. Despite the large stocks of certain kinds of goods that have been held in Cuba throughout the depression it is said to be a fact that the country is in present need of a number of cheap constructions.

The Clouded Future

The outlook? It requires a complete combination of manufacturing, merchandising and financing genius, together with a particularly astute international diplomatic vision, to forecast accurately export business in 1923. There is no lack of either optimists or pessimists in New York. Pessimistically, there is the confused tangle of world affairs in Europe and Asia, the outcome of which it is impossible to anticipate or predict; present high prices and the rising tendency throughout the list of staple cotton goods, and generally unsettled credit conditions. High prices naturally restrict export purchasing, and make the attitude of mills and their selling agents most independent.

On the other hand, it is pointed out, that a number of countries which are normally good customers for American cottons are now getting profitable prices for the products which give them their largest revenue. Stocks of cotton goods are not large in a number of South and Central American countries.

COMPARATIVE QUOTATIONS

	Jan. 25	Last Week	Last Year
Spot cotton, New York	28.60c.	28.15c.	16.70c.
Print Cloths:			
27 -in., 64x60, 7.60 yd.	8c.	7⅞c.	5¾c.
38½-in., 64x60, 5.35 yd.	11c.	10½-⅝c.	8¼c.
39 -in., 68x72, 4.75 yd.	12c.	11⅝-¾c.	9¼c.
39 -in., 72x76, 4.25 yd.	13¼-13½c.	13¼c.	10½c.
Brown Sheetings:			
36 -in., 56x60, 4 yd.	12¾c.	12¼c.	9¼c.
36 -in., 48x48, 3 yd.	15c.	14¼-½c.	10c.
37 -in., 48x48, 4 yd.	12¼c.	11¾c.	8½c.
Pajama Checks:			
36½-in., 72x80, 4.70 yd.	11¾-12c.	11½c.	11c.
36½-in., 64x60, 5.75 yd.	10½c.	10¼c.	9c.
Drills, 37-in., 3 yd.	15¾c.	15¼c.	10¼-10½c.
Denims, 2-20s (indigo)	23-24c.	23½c.	17c.
Tickings, 8-oz.	30c.	28c.	25c.
Standard Prints	11c.	11c.	11c.
Standard Staple Ginghams	17¾c.	17¾c.	16½c.

Hopeful Trend in British Cotton Goods

Larger Inquiry—European Political Situation a Disturbing Factor—Indian Advices Better

By *Frederick W. Tattersall*

MANCHESTER, Eng., Jan. 4.—The new year in the market has begun with most traders in an optimistic frame of mind. This attitude toward 1923 is not entirely sentimental, as undoubtedly during the last two or three weeks the tone in business circles has been better and in several quarters there has been a distinct improvement in the amount of inquiry. Numerous customers who a month ago were not interested in Lancashire goods are now finding out the position of sellers and the lowest prices which can be taken. A disturbing influence has been the European political situation, and it is realized that owing to disagreement among the allies important developments may occur.

Yarns Steadier

There have been indications this week of yarn quotations grounding and, despite the fact that cheap lots are by no means scarce, we seem to be within measurable distance when producers will be able to present a firmer front to customers. Stocks in certain directions are of inconvenient dimensions, and salesmen for some companies are compelled to sell from time to time for financial reasons. Operators who generally know what they are doing are quietly picking up mill shares. In American yarns for home consumption some improvement in the demand can be recorded, and although comparatively few contracts of weight have been arranged the turnover has been rather better than recently. Some producers of medium numbers have met with more success in obtaining orders.

Larger Cloth Inquiry

For some little time there has been a tendency for cloth inquiry to broaden and this week there has been a definite increase in the amount of business offering. Some leading shippers seem to be feeling their way toward active operations. The bulk of the offers from abroad, however, are still very low, although many of the bids are not so ridiculous as two or three weeks ago. For India more transactions have been put through in dhooties and mulls for Calcutta and Madras. Isolated sales have also occurred in gray shirtings and more demand has been about in printing cloths. Advices from Bombay remain rather disappointing. Light bleaching descriptions have been wanted for Karachi.

MANCHESTER RADIOGRAM

Manchester, Eng., Jan. 24 (*By Radio to* TEXTILE WORLD). —Market dearer; increased activity maintained. Big cloth turnover for India; some manufacturers now selling for May-June delivery. Shippers to India encouraged by improved value of rupee. China demand remains disappointing. More buying for Near Eastern and South American outlets. Yarns stiffer; increased turnover. Stocks distinctly smaller. Index number 210 against 196 a month ago.

Napped Goods Opened Lower Than Expected

Early Withdrawal of Prices Named This Week Is Expected —General Market Stronger

Openings of leading lines of napped goods for fall at prices somewhat lower than had generally been expected featured the week in the cotton goods market. With raw material touching new high levels during the week, business was fairly brisk during the first half of the week, and prices hardened all along the line. While the total volume of business done this week in print cloths may not come up to that of last week, there was brisk buying of general constructions of print cloths, sheetings, drills, twills and fine goods.

Still the Buyer Complains!

There is no such thing as pleasing all elements in a market as broad as that for cotton goods, and this is most certainly evidenced by the complaints voiced by some buyers that the napped goods prices named this week are too high. Such comments must come as a shock to the competitors of the big company who expected the leading factor to base its prices from ½c. to 1c. above those that have been named. There is no question that, in comparison with other goods, and on the basis of replacement costs and profits to be made on these costs, napped goods are too low at the opening levels. It undoubtedly is something of a strain for mills not possessed of raw material bought quite a long time ago to do business at prices quoted this week.

Business done generally through the market on outings, etc., is described as satisfactory, and there is little likelihood that present prices will hold for many weeks. In some sections withdrawal of lines is expected momentarily as this is written.

Whatever the conditions peculiar to one company that made possible the low prices named by it on napped goods, in effect it produces a merchandising policy which the keenest students in the market are advocating theoretically—that of selling goods as cheaply as is humanly possible.

The Raw Material Problem

Cotton is behaving about as predicted. There is much wild talk of 40c. cotton before the summer, and with the examples of many other years in mind, no one can doubt that it has possibilities of reaching that level. But few sane merchants hope that it will, and no one with the welfare of maintained healthy business at heart hopes that it will.

Nothing is more to be regretted in prospect than hysterical stimulus to an advancing market; whatever temporary advantages and benefits consid-

STAFFORD

STAFFORD Automatic Looms can now be supplied with either shuttle or bobbin-changing automatic features. They increase production, cut costs in half and frequently more, and produce a quality of fabric unsurpassed.

The Stafford Company
Weaving Machinery
READVILLE, MASS.
Southern Agent:
J. H. MAYES, Charlotte, N. C.

BOX LOOMS
for
Ginghams, Checks, Plaids
CROMPTON & KNOWLES
AUTOMATIC
Box Looms Weave the Best Fabrics

They increase production per weaving unit.

They increase number of looms per weaver.

They, therefore, decrease the number of houses necessary in the mill village.

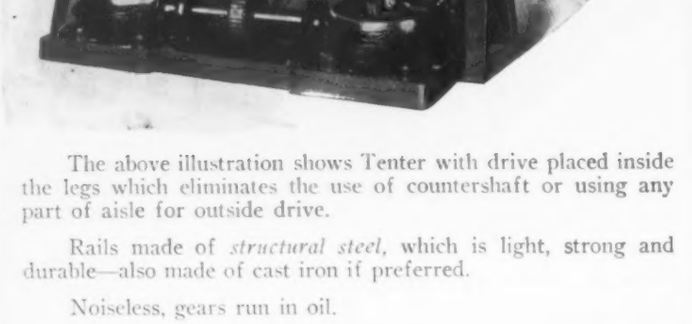
CROMPTON & KNOWLES LOOM WORKS
WORCESTER, MASS.

PROVIDENCE, R. I. PHILADELPHIA, PA. PATERSON, N. J.

ALEXANDER & GARSED
Charlotte, N. C.
Southern Representatives

AMERICAN TEXTILE MACHINERY CORP.
Bourse De Commerce, Lille, France
Representatives for Continental Europe

Hoey's Patented Tenter Frame



The above illustration shows Tenter with drive placed inside the legs which eliminates the use of countershaft or using any part of aisle for outside drive.

Rails made of *structural steel*, which is light, strong and durable—also made of cast iron if preferred.

Noiseless, gears run in oil.

All parts are accessible.

When used as a Swing Tenter a faster and more even motion is obtained than with any other Tenter on the market.

Write for further information

HOEY MANUFACTURING CO.
69 Sprague St. Providence, R. I.

Uniform Drying

There are well over two hundred mills now using

Sargent Dryers

for the drying of wool, cotton, rags, linters, and flax. These machines are upholding their long-established reputation for absolutely uniform drying. This operation is performed economically and thoroughly.

The natural life and structure of the fibre is not affected in the slightest, and, in wool drying, the wool may be left with the exact amount of moisture required. There are Sargent dryers for carbonizing, too.

Send for illustrated catalog

C. G. Sargent's Sons Corporation
GRANITEVILLE - - - - MASS.

Cotton Goods Markets—Continued

erally higher prices would bring they would certainly be more than outweighed by a natural and inevitable reaction. Normalcy is not yet here. Readjustment is probably not yet over; certainly not, in the opinion of good economists. It is an axiom that it takes months for events in the primary market to be reflected over the retail counter, but a very few days are necessary for the retail counter to make itself heard in the primary market.

Cotton Goods Trade Notes

The Amoskeag Manufacturing Co., Jarvis, Loomis & Boucher, selling agents, has named prices on the napped fabrics as given below. These prices are for bleached and lights. Darks are one cent higher. Delivery is April to October; mill delivery, no freight allowance; any goods shipped prior to April 1, terms 2 per cent, 10 days, 60 extra:

27-inch Fancies

1921 cloth	15½ cents

27-inch Plains

Pamela cloth	12 cents
Tacuna cloth	12½ cents
Ponceta cloth	12½ cents
Trinada cloth	12½ cents
Panola cloth	14½ cents
1921 cloth	15½ cents
Tunic cloth	15½ cents
Iris cloth	15½ cents
Daisy cloth	17 cents

36-inch Fancies

1101 cloth	17½ cents
1921 cloth	20 cents
Teazle Down	22 cents

36-inch Plains

1101 cloth	17 cents
901 cloth Panola	18½ cents
1921 cloth	19½ cents
Teazle Down	21½ cents
Daisy cloth	22 cents

32-inch Shirting Flannel

2701 cloth	22½ cents
2801 cloth	20 cents

Cone Export & Commission Co. has made prices on Revolution narrow and wide solid color and shaker flannels, for delivery April to September, inclusive, as follows:

36-inch Bleached Shakers

	Cents
Quality No. 700	15½
Quality No. 750	16¼
Quality No. 800	17
Quality No. 850	18
Quality No. 900	19¼
Quality No. 950	20½

Solid Color Flannels

	Cents
27-inch Baroness cloth	16½
27-inch Princess cloth	15
27-inch Victoria cloth	14½
27-inch Duchess cloth	14
27-inch Arden twills	12¾
25-inch Alberta twills	11¾
27-inch Fidelity flannels	14½
26-inch Beaver flannels	13½
25-inch Atlas flannels	13¼
25-inch Oriole flannels	12¼

Woodward, Baldwin & Co., on Tuesday named prices on 27-inch outing flannels, the product of the Brogon Mills, as follows: Saluda Flannels, comprising light plaids, checks and stripes, gray stripes and plaids, all plain piece dyed shades and plain mixtures, 13½c.; Romaine Flannels, comprising dark plaids, checks and stripes, 14½c.; Louise Twill, in plain colors, white, cream, pink and light blue, 14½c. Delivery is April to August inclusive; terms 2 per cent. ten days from Oct. 1, f. o. b. mill, no freight allowance.

Amory, Browne & Co. at the beginning of the week announced the selling up and withdrawal of Red Rose of Lancaster, Toile du Nord, Imperial Chambray and Calburnie ginghams for fall.

Catlin & Co. have named prices on napped goods, including the following:

Appleton Co.

	Light Styles	Dark Styles
27-inch Fancy Outings:		
Apple Fluff	13½	14½
Apple Swiss	15	16
36-inch Fancy Outings:		
Golden Apples	17½	18½
Apple Swiss	19½	20½
4/4 Flannels:		
Apple Byelow	17	
Apple Alert	17	
Apple Slumber	18½	
Apple Tyrol	19½	
32-inch Fancy Outings:		
Snow Apple	17	18

Solid Colors

	Bleached and Lights	Dark Colors
Apple Lark	12	
Apple Wren	12½	
Apple Twilldown	13½	14½
Apple Sultana	14	15
Apple Wara	14½	15½

Tremont & Suffolk Mills

	Light Styles	Dark Styles
27-inch Fancy Outings:		
F. S.	14½	15
L. D.	12½	13
36-inch Fancy Outings:		
F. S.	19½	20
L. D.	17	17½
4/4 Bleached Shakers:		
Lily	15½	
Lucern	16¼	
Lotus	18½	
Locust	19½	
Lilac	22	
27-inch Bleached Flannels:		
Puritan	12½	
Triumph	13½	
Pilgrim	13½	
Templar	14½	
Priscilla	14½	
Tuxedo	16	

Hamilton Mfg. Co.

4/4 Bleached Shakers:		
Climax	15½	
Cameo	16¼	
Medora	18	
Potomac	18½	
Cumberland	19½	
27-inch Solid Colors:		
Devon	12	13
Dixie	12½	13½
Defiance	13½	14½
Defender	13½	14½
Dauntless	15	16
4/4 Solid Colors:		
Rainbow	17	
Sundown	18½	

Florence Mills

36-inch Florence Flannels	16½

Cone Export & Commission Co. has priced fancy flannels, for delivery April to September, inclusive, as follows: Mineola, at 15c. for lights and 16c. for darks; Royal Plume at 13c. for lights and 14c. for darks; Radio Fleece at 13c.; Fairfax Flannels at 12c. for lights and 13c. for darks.

Amory, Browne & Co. have priced flannels for delivery May through August, as follows: Persian, at 13½c.; cashmere, at 15½c.; Malta at 17c.; 36-inch Lapland, white, at 17½c.; 36-inch Sealskin, at 23c.

William Iselin & Co. have priced Franklin outing flannels at 15c for lights and 16c. for darks; delivery April through September.

Eldredge & Snyder this week opened their Wool Blanket and Flannel Lines for Fall. These include their Pemco All-Wool blankets in plaids, of which an extensive range of leading weights is offered, and the products of the Pearce Mfg. Co. and the Maretta Mills, the latter two comprising a full line of both staples and plaids.

Eldredge & Snyder state they are now the largest distributers of white and colored wool flannels, handling the products of the Bollard Vale, Northfield, Oxford and Olney Mills. The line, now being shown, includes all widths and weights, for the job-

(*Continued on page 63*)

Like wrasslin' fish hooks

For Old Man Yarn to slip off a "Sonocone"

It took twenty years to develop the Perfect Surface for Winding—the right long, catchy fibre and the proper embossing. But now it is one of the Exclusive features that make up "Sonoco" Superiority. Dont Gamble—Specify.

"Sonoco" Cones and Tubes

Southern Novelty Co., Manufacturers

C. W. Coker, President Hartsville, South Carolina

Eastern Sales Office, New Bedford, Mass., P. O. Box 170, L. T. Shurtleff, Manager

OUR firm has purchased cotton, graded into even running lots and sold to mills for eighteen years. Mills that deal with us get the benefit of this long experience.

Buy the right cotton, then go ahead.

COOPER & GRIFFIN

Incorporated

Cotton Merchants

Greenville, S. C.

Branch Offices

Charlotte, N. C. Atlanta, Ga.
Spartanburg, S. C. Toccoa, Ga.
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WOOL GOODS MARKETS

Staple Coatings Are Feature of Dept. 4

American Shows 25 Numbers of "Pile Sheen" Coatings—Corporation Goods Priced

The attendance of the cloak, suit and dress trade at Tuesday's opening by the American Woolen Co., was large, 189 buyers being reported on the floor up to noon of the opening day. The fall showing indicates that the company is going out most strongly for staple and semi-staple business, since there was a marked absence of novelties or ultra-fancy goods in the line. The fact that on the coating end the showing was concentrated on a complete range of pile effect fabrics can be taken as an indication that the best authorities agree in expecting these fabrics to remain the leaders for bulk business through the next season. The American's showing of "pile sheen" goods in 25 numbers, ranging as it does from $3.22½ to $6.37½, covers in a broad way all the needs of the garment trade.

It is noted that in the higher priced coatings the diagonal ribbed effect becomes extremely fine so that the fabric almost presents the uniform appearance of a velvet. It is felt by students of the situation that this type of construction will prove a better seller, especially in the more expensive goods than the wider ribbed effects. Delivery, rather than price, will apparently be the problem of the season in these coatings for it is stated they are exceptionally slow in the weaving process. It is said that a loom which turns out one piece per week is doing good work, while 10 pieces per week is the expected capacity on such fabrics as velours.

Bedford Cord Showing

Preparations are being made for wider distribution of Bedford cords and the big company shows seven grades of this weave ranging in price from $1.67½ to $2.45. The dress trade is also interested in wool crepes and a revival of tricotines is looked for. In general the American's showing was regarded as low in price, advances where comparisons were possible with last fall ranging from 1.2 to 11 per cent. and the line generally being said to average 8 per cent. below the secondary market on similar goods.

One of the leading staple worsted dress goods corporations named prices for forward deliveries last week, and it is understood that production is already taken up, with allotment the general rule in most of the popular numbers. In other quarters prices are still being withheld and it may be that as the season progresses higher levels will be found practicable.

Women's Wear Trade Notes

The American Woolen Co. is planning its season to give the buyer the most flexible possible arrangement on color requirements. After orders on its women's wear fabrics are confirmed the buyer is expected to specify his colors on 75 per cent. of the order. The remaining 25 per cent. need not be specified until August. Even at that time the company makes an effort to change colors on as short notice as possible in order that buyers may benefit by adapting themselves to the last minute demands of fashion.

Camel's hair effects in coatings promise to hold through another season and a number of new and attractive variations are being shown. Several of these give a two-tone effect which is an attractive variation from the established solid camel's hair color.

The Amoskeag Mfg. Co. priced staple worsted dress goods for delivery up to July 1 last week. It is stated that their 7301, 54-inch all wool serge is quoted at $1.07½ and their 7614 at $1.20. A crepe style 2020, 54-inch all wool is reported at $1.17½.

A. D. Juillard & Co. have priced and sold up their worsted line of women's wear fabrics for spring deliveries. Their woolen line including broadcloths and flannels was priced this week.

Bradford Prices Are Stiffer All Round

Reparations Developments Cause Hesitancy—Merinos Almost Up to Highest Point of Oct.

(*From Our Regular Correspondent*)

BRADFORD, Eng., Jan. 9.—Last Thursday there was a good deal of business in almost all qualities of tops and yarns. Merinos came in for a fair amount of attention and the booking of orders promptly led topmakers to ask slightly higher prices. As a result 64s were generally quoted at 63d. as a minimum, and many topmakers wanted 64d. The highest point reached last autumn was 64d., and as this was a protective price, while 63d. and even 64d. has been made in actual transactions last week, it can be said that merinos are now practically back at the highest point. Seventies have not recovered to this extent, but, on the other hand, 60s super have gone beyond the previous highest.

Fine crossbreds, which lagged behind during the advance of medium crossbreds, have been more patronized, and are against the buyer. Medium crossbreds have still continued to find American buyers, both of tops and matchings, and the demand for the home trade has been good. Coarse crossbreds have also been moving.

Prices now stand as follows, compared with the highest point touched in October:

	Jan. 8	Oct. 26
	pence	
70s merino	65	68
64s merino	63	64
60s super	58	56
58s crossbred	46	44
56s crossbred	36½	35
50s crossbred	27	25
46s carded	18	16¾
40s prepared	16	14¾

The Merino Clip

The trade has been somewhat concerned by later estimates with regard to the Australian clip. At first it was reported that the shorter and finer character of the wool, due to partial drought, would reduce the bulk of the clip by about 50,000 bales, but that the quantity of merino wool would not be seriously reduced. A later estimate from Dalgety & Co. now puts the decline as high as 140,000 bales, and estimates from other sources mention 200,000 bales—most of the decline in merino wool.

A year ago the trade had available the current Australian clip, plus 420,000 bales of B. A. W. R. A. merinos. At the present time it has only 74,000 bales of B. A. W. R. A. merinos, plus a clip which shows a decline of something over 100,000 bales. Hence the trade supplies of Australian merinos—which, after all constitute a unique type of wool from a combing point of view—have been reduced by some 450,000 bales, or nearly 25 per cent.

BRADFORD RADIOGRAM

Bradford, Eng., Jan. 24 (*By Radio to* TEXTILE WORLD).—Bradford quotations for tops and yarns have been advanced in consequence of further rise in wool at Liverpool and London. Top makers and spinners are adopting protective attitude and are not pressing for new business, but big weight of merino tops sold on Monday at 1 to 2d. advance over last week. Fair amount of new business in fine and medium crossbreds at higher prices. Wool is forcing pace and rapidity of advance has disturbing effect on later stages of industry. A 64s tops quoted at 64 to 65d.; 56s at 38½d.; 46s carded at 19d.; 2-48s Botany yarn from 64s top quoted at 7s. 3d.

Start Fall Season in Men's Wear Lines

Overcoating Interest Feature of Opening — American's Prices Regarded as Satisfactory

The opening of men's wear lines by the American Woolen Co. for the fall, 1923, season, started the ball rolling and the week has witnessed the showing of fall goods in many other quarters. A full attendance of out-of-town buyers is on the market, and the independent mills are hurrying to take advantage of their customers' presence in New York. Few showings this season are held up through delay in the preparation of samples, for the trade generally learned its lesson last July when the American Woolen Co. stole a march on them by opening a week or ten days earlier than had been anticipated.

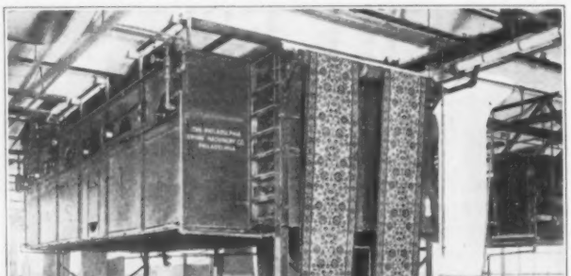
Interest in Overcoatings

Overcoatings have been the centre of buying interest and fancy backs of all grades seem assured of a full advance business. In many instances mills will probably not be able to make complete deliveries of all the coatings they are able to sell. Despite the fact that high priced goods were the most popular in the current season, the greatest pressure for forward business now seems to be on the lower priced end. The showing by the big company introduced many lines for less than $3 and it is the market's belief that these fabrics will be sold up in a short time. Though comment is heard to the effect that many of the big company's overcoatings were lower priced than expected it is not yet apparent that the independent mills which have been selling goods during the last six to eight weeks, have yet been forced to revise their figures.

Fancy worsted suitings comprise the only class of goods not yet open for fall and the independent mills are for the most part withholding them until the market's leading factor takes action on these lines. The feeling expressed by clothiers that if worsted prices are too high they will be forced to concentrate on fancy woolens, is likely to be given consideration and the fancy worsted prices will undoubtedly be on a rock bottom basis. Since some grades of wool have nearly doubled in price during the last year or year and a half there is basis for a strong attitude, but it seems the better part of wisdom to lead the buyer upward slowly and not to choke off the returning popularity of worsteds by setting high rates even though these might be justified.

Men's Wear Trade Notes

The average advance on staple worsteds over a year ago as disclosed by



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Wool Goods Markets—Continued

the American Woolen Co.'s showing is 12½ per cent. which is considered moderate by manufacturers of similar lines.

Labor leaders have made the request of the American Woolen Co., that the wage reduction of 22½ per cent from the after-war peak be reinstated.

Deering, Milliken & Co., have opened for fall, 1923, their 9800 range Pondicherry overcoatings, 32 to 34 ounces, plaid back, at $3.25 regular which was opened last year at $2.50 a yard. Also, they have opened another plaid black overcoating from the Pondicherry mill, weighing 35 ounces, fleece finish, at $3.50 a yard, and a line of plaid back overcoatings from the Cowan Mill, a new cloth weighing 32 ounces at $4.75 a yard.

The Worumbo Co. has opened overcoatings for the fall, 1923, season.

H. M. Stockton & Co. have opened plaid back overcoatings of W. J. Dicky & Son at $2.80 to $3.90 for the 30 oz. range and $2.50 to $2.65 for the 24 oz.

American's Fall Opening

(*Continued from page 23*)

the trade may have free scope in making its own choice. Comparing the prices named with the current prices on similar goods now selling among second hands the difference is distinctly in favor of buyers. It is apparent that all the fabrics are on a basis that will result in wide distribution, and Mr. Silver recognizes that it is not price but delivery which will be the problem of the season.

Mr. Silver has found buyers generally enthusiastic over the line. Specially emphasis is laid on two numbers of the Polaire group known as Llamalaine, which are finely developed camel-hair effects in 16 and 18 oz. fabrics at $1.87½ and $2.00, respectively.

The new colors for the fall line of the American's women's wear fabrics include the following shades: Two castors—Douvres and Fantasio; two grays—Farandole and Troupier; four castor-browns — Cresson, Saumon, Chataigne and Deer; one brown—Elazon; one green—Pharason; two blues—Donanier and Avenir.

New Lines and Price

Only a few numbers are repeated from the showing of a year ago and comparisons of these numbers show the following advances: Piled sheen coatings, from 1 3/10 per cent to 8⅓ per cent; a low-priced melton, 2 per cent; a lightweight velour, 2 3/10 per cent, and a Poiret twill, 11⅓ per cent. A comparison of the fall 1922 opening price with the fall 1923 figure on these various repeat numbers is given below:

PILE SHEEN COATINGS.

	Fall Price— 1923	1922	Per cent. Advance
Zamora, 0562	$5.50	$5.42½	1.30
Ormondale, 21371	6.00	5.50	8.33
Velverette, 21324	6.20	5.75	7.25
POIRET TWILL.			
[illegible]	2.15	1.90	11.60
LIGHT WEIGHT VELOUR.			
[illegible]	1.47½	1.42½	3.20
LOW PRICED MELTON.			
[illegible]	1.17½	1.15	2.00

In connection with the above it is pointed out that Ormondale has been selling in second hands at $7.00 and the above-named Poiret twill at $2.10 net or $2.33 regular, which latter figure includes terms which make it comparable with the $2.15 quoted for the new season.

The following summarizes the big company's showing in women's wear, the great majority of the numbers being new. The pile effect coatings are developed with special stress on the lustre of the surface:

PILE SHEEN COATINGS

	Weight in ounces	Fall, 1923, opening price
Granada, 0628	17-18	$3.22½
Morevia, 0637	17-18	3.75
Xcella, 16061	16-17	3.87½
Amourette, 1353	16	3.87½
Deloraine, 1337	18	4.60
Franzette, 16070	18	4.60
Bonnotte, 0616	17	4.62½
Delamarre, 1335	17	4.67½
Khorasan, 090219	19	4.72½
Sealbloom, 09213	18	4.77½
Florevelle, 1347	19	4.82½
Bonivoine, 0582	17-18	5.05
Truvonnet, 1350	17	5.17½
Burolaine, 0608	19	5.25
Fontanna, 1349	19	5.30
Chantonnay, 0625	18-19	5.37½
Fromoss, 15140	19	5.37½
Charreton, 0607	18-19	5.50
Zaniora, 0562	19	5.50
Camorette, 1339	18	5.50
Coronello, 1345	20	5.67½
Monetta, 18209	16-17	5.67½
Ormondale, 21371	16-17	6.00
Velverette, 21384	17	6.20
Velinette, 21425	16-17	6.37½

POIRET TWILLS FOR DRESS AND SUIT TRADES

0571	10½	$2.07½
0592	10½	2.10
09164	10	2.15
09165	10	2.30
09196	10	2.32½
09198	10	2.40
09199	10	2.47½
09187	11	2.62½
090200	10	2.65
160	11½	3.00
172	11½	3.05

TRICOTINES FOR DRESS TRADE

09201	10	$2.20
09203	10	2.35
09205	11	2.60

CREPES FOR DRESS TRADE

166	6½	$1.72½
09229	8	1.85
0635	10	1.85

BEDFORD CORDS FOR DRESS TRADE

0610	8½	$1.67½
0611	8	1.82½
0614	8	1.92½
169	9	2.12
164	8½	2.20
170	8½	2.25
09233	10	2.45

MELTONS FOR COATINGS

1313	18	$1.12½
16052	20	1.17½
1364	20	1.20
1365	20	1.25
1366	20	1.30

VELOURS FOR COAT AND SUIT TRADE

1307	10	$1.47½
1308	10	1.57½
1326	16	1.65
1315	16	1.67½
1316	18	1.77½
1323	20	1.87½
1300	20	2.52½

BROADCLOTHS FOR COATS

112	12	$2.20
1343 (kersey finish)	17	2.57½
1342	16	2.92½
POLAIRES		
1327	14	$1.40
11016	22	1.50
11019	21	1.65
Llamaline:		
1367	16	$1.87½
1368	18	2.00
Drop Polaire (reversible):		
11017	20-22	$2.32½
10018	20	2.92½
Plaid Face and Plaid Back:		
11007	21	$3.00
Plaid Polaire:		
11016	22	$1.50
Plaid Faced Polaire:		
15149	18-19	$2.47½
15147	18-19	2.40
15148	18-19	2.42½
CHINCHILLAS		
17005, plaid	24	$3.50
17003, double plaid	24	3.37½
11015, contrast back	24	3.72½
1303, sport shades	18	3.35

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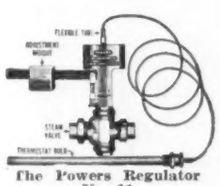

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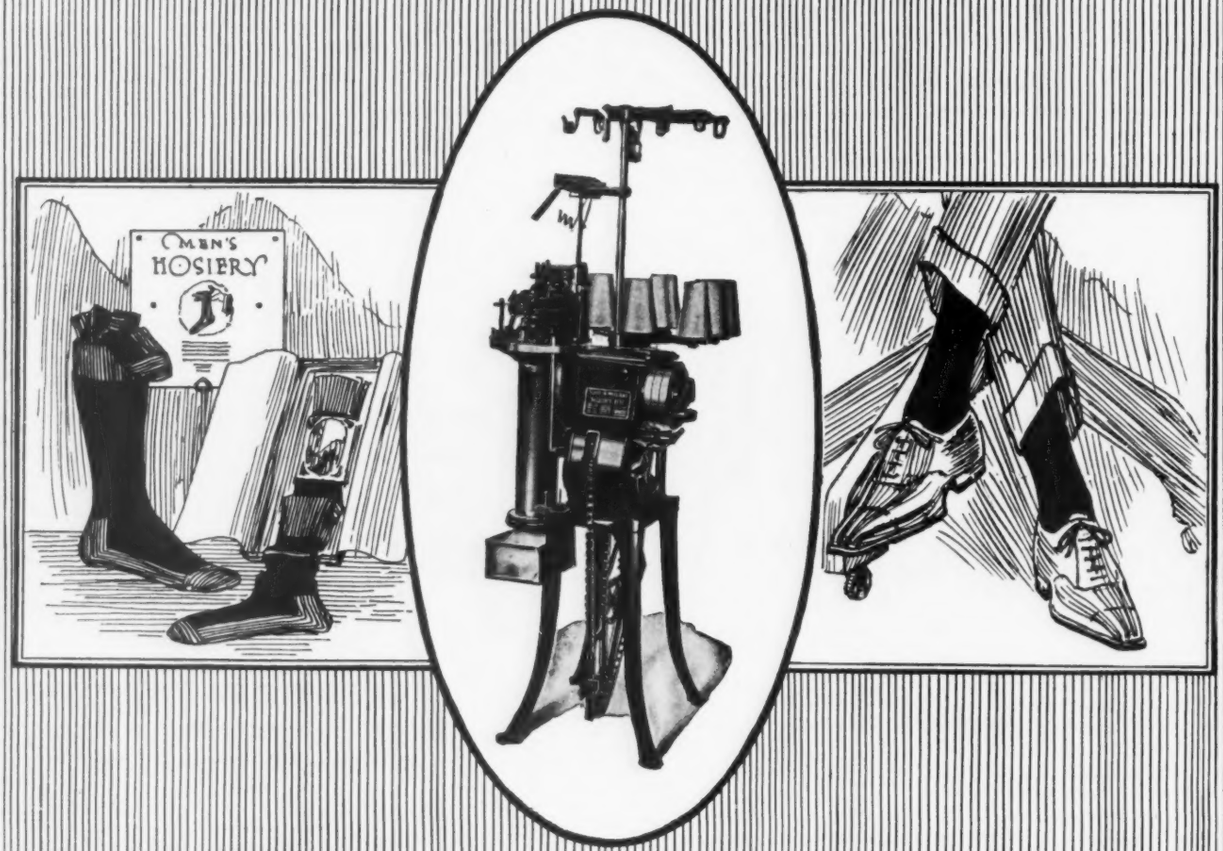

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KNIT GOODS MARKETS

Hosiery Buying Spotty; Cheap Goods Dominate

Fairly Satisfactory Volume Done Since January 1, Particularly on Seamless Silks

Somewhat irregular, but on the whole satisfactory to most sellers, is an accurate statement of hosiery market conditions this week. Complaints are made by a number of mill representatives regarding the amount of buying done by jobbers during their stay in the city, particularly on higher priced lines. Full-fashioned silk hosiery has moved only sluggishly, and to good students of the market it seems as if a reversal from full-fashioned to seamless is now well under way.

The cheaper lines, however, have been bought fairly well, and anything up to 220 needle goods are in active demand for immediate and nearby delivery.

Buyers' Position Natural

Those who bemoan the fact that jobbers are displaying the same old tendency to sample and shop around, buy a few numbers here and there but almost never a complete line, do not trouble to put themselves in the jobber's position and to realize that he is playing the game as it should be played, according to the situation as he sees it. Prices may go higher next month, or two or three months from now, but they will certainly be lower eventually, and when is eventually? Who can blame the large buyer, or the small buyer either, for that matter, for watching his step as carefully as he can? From his perfectly sane standpoint, it is far better to be caught short of merchandise in a temporary burst of rising prices than to be loaded with goods in a definitely falling market.

In view of this very understandable hesitation, it is a healthy sign that many selling agents report a comfortable volume of business done since the first of the year, and a much better outlook than was possible in 1921 or 1922.

Infants' goods are moving slowly, and there is a rather general lack of interest in them as a class. A few exceptions to this statement are to be noted, however, directly traceable to the initiative of individual mills in putting out distinctive novelties.

Heathers for Fall

How heathers for fall will go is a question which is still to be answered, considering the market as a whole. There is no question that certain lines, notably the cheaper ones, have already been well received and good orders booked on them. The popularity of others is still to be determined, however, and it is felt by many who are in a position to know that price will be the dominating factor, in the absence of a really strong style swing.

Hosiery Trade Notes

A sporadic market is perhaps the best way to describe the hosiery situation. One well known selling office was visited by fifteen buyers one afternoon this week, and all of them bought, while the following morning failed to produce a single buyer.

Jobbers are still talking of the large stocks of light heathers they have on hand which must be redyed to be salable. Browns and blacks are understood to continue in dominant popularity, but the jobber might very wisely allow more time to go by before he decides definitely that lights are hopeless for next fall.

That infant's hosiery of all grades is exceedingly dull is undeniably true in the majority of instances, but there are exceptions. A regular type of the hose which has been standard in this division for many years was transformed into a most active seller by the addition of a little novelty trimming, with no change in the construction of the hosiery itself.

Generally speaking, the higher priced women's lines are understood to have been only sampled so far. The spotty condition of the trade is indicated by the fact that chiffon silks have sold very well to certain sections of the country, particularly the larger cities.

While there are rumblings of complaint in the hosiery market regarding the volume of business done, on the higher priced lines particularly, generally speaking knit goods are in a most satisfactory position.

Cheaper grades of hosiery have sold well in most instances and some lines of heathers have been well received. Cotton underwear for fall has been bought heavily, and price advances are considered inevitable. A real shortage of spring goods is probably not far off. Sweaters and knitted outerwear generally are in a most satisfactory position, a substantial volume of business having been placed in the last few weeks.

Prices Advance in Outerwear Markets

Large Volume Booked on Sweaters for Fall—Bathing Suits Also Active

"We have taken three times as much business from Jan. 1 to date as we received in the same period in 1922, and I have no doubt that the trade as a whole has on its books at least twice as much business as was taken in the same weeks in January, last year." This statement, made this week by a selling agent for a number of prominent knitted outerwear mills, most of them making sweaters, is a good summary of the healthy condition of this trade generally.

This business, it was carefully explained by the selling agent quoted above, is almost entirely definite and tangible, there remaining only a small percentage of open orders yet to be confirmed.

More Advances to Come

Price advances on lines of sweaters are being made as rapidly as the policy and position of individual mill or selling agent dictate. Still higher prices than those of today are regarded as a certainty all through the market. In instances where no advance from the opening prices has yet been made it seems to the impartial observer that the delay is largely caused by consideration of the percentage of increase it is wise to put in effect.

The extremely satisfactory volume booked on sweaters for Fall is indicated by the announcement shortly to be made by a large and well-known mill that no open orders will be accepted or continued on the books after Feb. 1. Western buying is understood to be largely finished for the present, but a few selling agents believe that the South as a whole has not yet completely covered its requirements. A heavy demand for immediate delivery spring sweaters has been experienced in not a few parts of the local market, and it is believed by well-informed merchants that slipovers, last year's novelty success, will be equally successful this Spring.

Bathing Suit Reorders

Bathing suit conditions largely duplicate those in the sweater market. Good sized reorders are being received right along, and prominent lines are being marked up. A 10 per cent. advance was made last week on the products of a leading mill in this division of the industry, and this represents the ideas of a number of shrewd sellers as to the proper percentage of increase to make at this time.

Cheerful reports continue as to the buying of jersey cloths by the manufacturing trades during the last few weeks.

Fall Cotton Underwear is Selling Heavily

Jobbers Buy Freely in Anticipation of Higher Prices—Some Lines Sold Up

"The best market we have had in five years." This emphatic statement of a leading selling agent of cotton underwear for fall may be something of an exaggeration, but there is certainly enough basis for optimistic enthusiasm in the volume of business taken during the last two weeks on this class of merchandise. Without exception representatives of prominent lines in the local market have booked most satisfactory orders for fall cotton underwear. A number of them claim to have sold up and stopped taking business, which probably means they have gone as far ahead as mills are willing to go in view of the raw material situation.

Spring Shortage Probable

A very real shortage of balbriggans for spring is freely predicted, and signs of the realization of such predictions are not lacking. There are a number of mills which cannot make anything like immediate delivery; one well known, widely advertised and standard brand of bals is sold up tight through May 1, and its selling agents are beseiged daily with requests for deliveries. The mill which can accept orders for spring goods at this time is unquestionably in a position to add most profitably to its turnover.

Wool and merino underwear for fall, while not in the enviable position of cotton underwear, has shared in the buying to an extent. It is fairly certain that business on this merchandise has been much better this year than in the corresponding period in 1922. One representative line is said to be about three-quarters sold up.

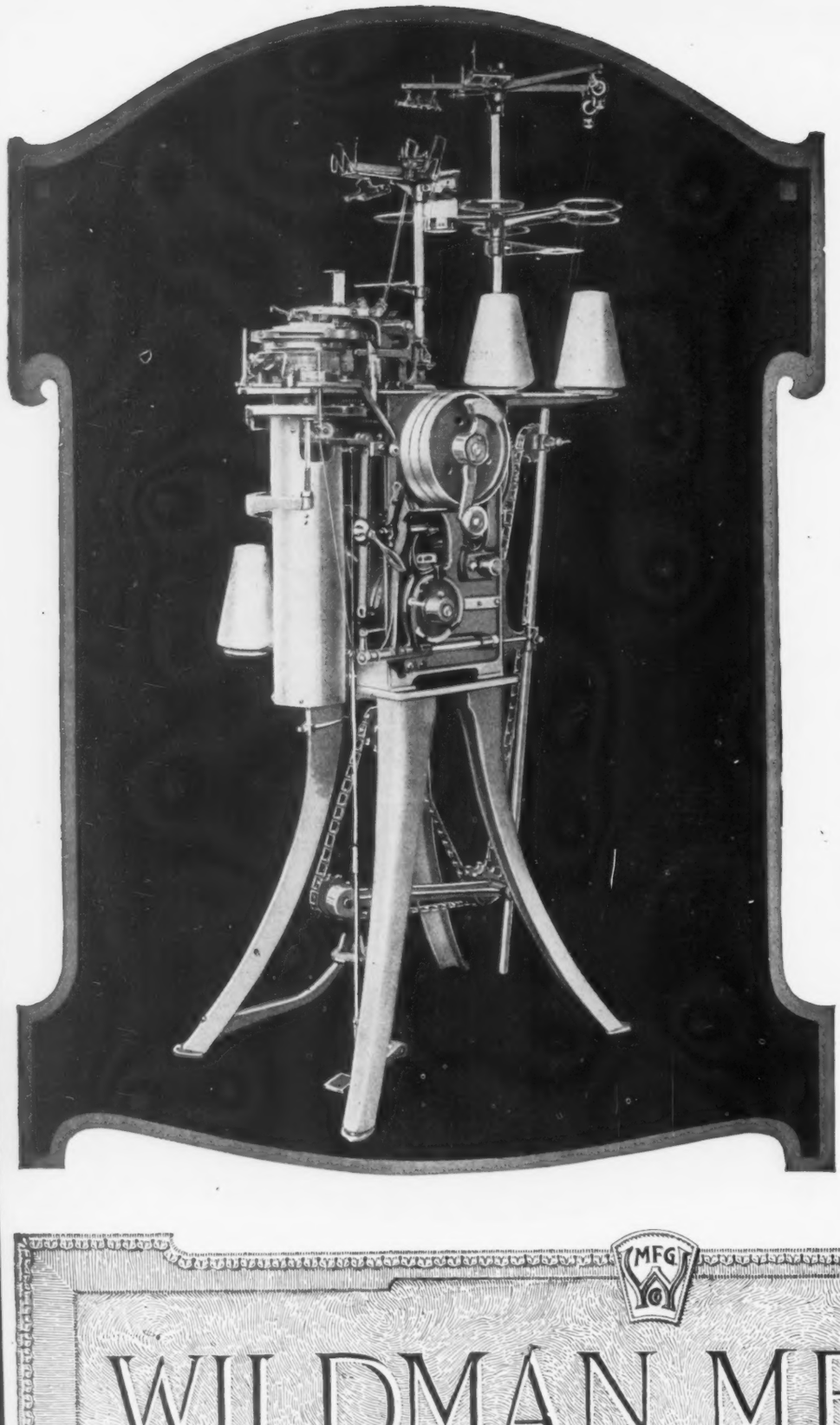
Advances on the Way

There is no evading the fact that advances in cotton underwear are practically certain to be made. Mills which are able to operate for many months on low priced yarn are fortunate, and also few and far between. If the raw cotton market lives up to its symptoms of further appreciation, the underwear manufacturer who made his opening prices on the basis of yarns spun out of 25c. cotton will be forced to advance his product, or fail to live up to his obligations.

Underwear Trade Notes

A well known line of women's underwear, which has been nationally advertised for years, will be advanced on February 1 in accordance with the new raw cotton basis, it is understood in the market.

Advice as to the nature of the re-



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In every piece and part of Wildman Knitting Machinery is embodied a generation of experience in anticipating and meeting the needs of hosiery manufacturers.

It is your assurance that your hosiery will always live up to your highest standards of quality—that your production will maintain the accustomed volume.

Such certainty is well worth having.

We are now able to sell Wildman Spring Needle Knitters in all foreign countries.

On request we will send the "Wildman Spring Needle Knitter Machine Instruction Book," giving detailed information and description of every important part of the machine.

We have issued a very complete and informative book, "The Science of Knitting." Price $3.00.

MFG

WILDMAN MFG. CO.

NORRISTOWN, PA.

Knit Goods Markets—Continued

port to be made about cotton underwear in a number of instances is phrased: "Go the limit in optimism."

It was an interesting experience to sit in the office of the selling agent for a standard grade of "all-the-year-round" men's cotton underwear this week and unavoidably overhear some of his telephone conversation with his mill. It consisted largely of repeated urgings that the mill go out and beg, borrow or steal more help to turn out more goods; jobbers are daily demanding deliveries on this line which cannot possibly be made.

Deliveries and not orders will undoubtedly be the major problem of the trade from now on.

Discussion of the probable shortage of spring underwear has developed to the point where an undignified scramble for goods is freely predicted.

Louis Stone of Stone & Warren has been away from his office for over a week with a slight touch of pneumonia.

Cotton Goods Trade Notes

(Continued from page 55)

bing, manufacturing and embroidery trades.

The Ames Fabric Corp. has been formed by H. Irwin Moraff, president; E. S. Twining, Jr., vice president and treasurer; O. M. Craig, secretary and L. H. Daniel, assistant secretary. The new corporation has appointed Moraff, Twining & Co. selling agents. It will specialize in bleached and colored cotton goods for manufacturers.

Converse & Co. have priced North State outing flannels at 15c. for lights and 16c. for darks, delivery April through September.

Deering, Milliken & Co. have removed a discount of 2½ per cent. on Lockwood and Dallas wide sheetings.

A report from Fall River this week that the Guggenheim interests had made an offer of $25,000,000 for the purchase of the American Printing Co. is denied by both the Guggenheim offices and Bertram H. Borden, of M. C. D. Borden & Sons, president of the American Printing Co.

James L. Wilson & Co. this week named prices on napped goods for delivery April and later as follows:

	Lights	Darks
36 inch New Era	15c	....
36 inch Trueworth	15½	16½
36 inch Scotch	17½	18½
36 inch No. 400	19½	.....
36 inch Glacier	29½	.....
26 inch Prospect	11½	12½
26 inch Lowell	13½	14½

The Cone Export & Commission Co. on Wednesday announced that all 36-inch Revolution flannels had been sold up to October and withdrawn.

The Amoskeag Mfg. Co., Jarvis, Loomis & Boucher agents, have named a price of 30c. on 8-ounce A. C. A. tickings.

Harding, Tilton & Co., McCampbell Dept., have been appointed exclusive selling agents for the Sibley Manufacturing Co., effective February 9. With this announcement the McCampbell Dept. increases its total of spindles represented to 273,648, as follows: Augusta, 40,192; Enterprise, 35,222; Graniteville (including Warren), 96,000; Ivey, 13,360; Montala, 11,552; Sibley, 42,552, and Southern, 32,760.

OBITUARY

Matthew T. Glennon

Matthew T. Glennon, president of the New Bedford (Mass.) Textile Co., died at his home in that city last Monday, after an illness of three weeks. He was in his 55th year. Born in New Bedford, Mr. Glennon left the city 20 years ago for Wilkes-Barre, Pa., where he was for seven years superintendent of a spinning mill, returning to New Bedford 12 years ago as superintendent of the Lambeth Rope Works. He afterwards organized the New Bedford Textile Co., of which he was president. Mr. Glennon is survived by his wife, two sons and six brothers, the latter including Thomas F. Glennon, agent of the Quissett Mill, New Bedford, and Joseph R. Glennon, superintendent of the Nemasket Cotton Mills, Taunton, Mass.

Samuel Stansfield

Samuel Stansfield, sales manager of the Crown Mills, 334 Fourth Avenue, New York, since 1911, and for many years a prominent figure in the local woolen market, died Wednesday morning in a private sanitarium. He had been ill for some time, and death resulted from a complication of diseases. Mr. Stansfield was 56 years old, and though born in England, lived most of his life in the United States. Prior to his connection with the Crown Mill he was sales manager of the Waterhouse Worsted Co., and before that he represented foreign woolen manufacturers, both abroad and in this country. The funeral, which was private, was held Friday morning, interment being in Greenwood Union Cemetery, Harrison, N. Y.

Joseph Haines

Joseph Haines, 60 years old, died after a long illness at his home in Somerton, Pa. He was president of the Schuylkill Hosiery Mills, Inc., Reading, Pa., since its organization three yars ago, and proprietor also of the Haines Hosiery Mills, Nicetown, Pa. He was employed in the Folwell Woolen Mills, Philadelphia, in his boyhood, and became a partner in the concern. Later, with his son, he became a hosiery jobber and manufacturer.

Arthur E. Boas

Arthur E. Boas, owner of the Boas Thread Co., Stamford, Conn., died in Breslau, Germany, recently. Mr. Boas had gone to Europe for his health. His home was in New York City. He was 62 years old. He established the factory in Stamford about 35 years ago.

"PARAMOUNT METHOD" FABRIC HOLDER

The PARAMOUNT Fabric Holder is one of the greatest developments in the art of finishing hosiery. It prevents the goods from creeping up during the drying process and the following advantages are all direct results of its use:

Uniformity of length.
No disfigurement of goods.
Less work for pairers.
Goods lie better in boxes.
Improved finish of the product.

PARAMOUNT FORMS and METHOD OF FINISHING have been developed to meet every requirement of correct finishing.

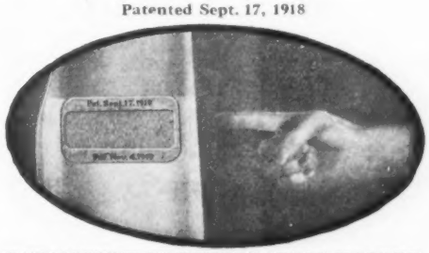
With PARAMOUNT EQUIPMENT you are assured of an increased selling value in your merchandise, greater production and fewer seconds. You will find a large saving in labor, steam and floor space, improved factory conditions and satisfied help. If interested, our representative will call, DEMONSTRATING IN YOUR OWN MILL WITH YOUR OWN PRODUCT the improved results obtained by finishing on Paramount Drying and Shaping Forms.

You can secure Paramount Equipment on either a Sales or Rental basis

Complete equipment can be seen in New York Office, 366 Broadway. Address all correspondence to Chicago Office

PARAMOUNT SERVICE GOES WITH PARAMOUNT FORMS

Patented Sept. 17, 1918

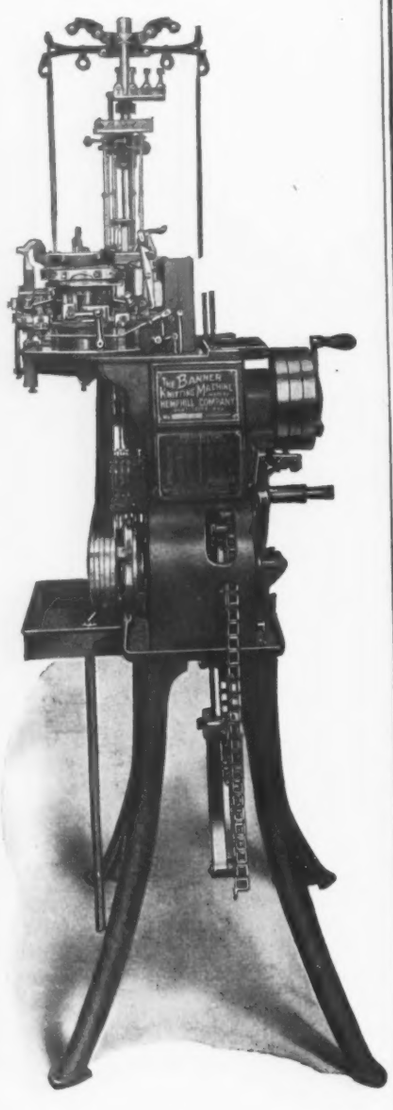


PARAMOUNT METHOD FABRIC HOLDER

Patented Nov. 4. 1919

PARAMOUNT HOSIERY FORM DRYING CO.

Hunter Building
Market and Madison Streets
Chicago, Ill.



NEW MODEL
SPLIT-FOOT
MACHINE

NEW MODEL SPLIT-FOOT MACHINE

for making the highest quality of seamless hosiery, doing away with all unsightly trimmed splicing yarns.

The leading hosiery mills of the country are using them in large quantities. It is a fast and economical producer and its product is the last word in seamless hosiery.

Write for circular.

HEMPHILL COMPANY

Main Office and Factory
PAWTUCKET, RHODE ISLAND

Canadian Office and Showrooms
Room 202 Gore Bldg.
Hamilton, Ontario

Southern Office and Showrooms
Rooms 912-913 James Bldg.
Chattanooga, Tenn.

Philadelphia Office and Showrooms
Rooms 208, 209, 210
Colonial Trust Bldg.

BANNER

"Falsehood-in-Fabric" Bill

(*Continued from page 21*)

two years ago and the carded woolen manufacturers' review of its development shows that politicians seeking votes, and one firm of wool manufacturers using the movement to advertise their products, have reinforced the wool growers and succeeded in bringing about the present situation.

Effects of the Bill

The statement summarizes the effects of the bill as follows:

1. Failure to detect violations by analysis of fabrics:

2. Attempt to enforce law at huge expense by inspection of mills, this resulting in failure because the proportions of different materials in wool going into the mills varies in unknown degrees from the proportions of the same materials in the yarns and fabrics coming out of the mills;

3. Arbitrary rules by the Departments and courts will bring about a situation under which the executive and judicial departments will really frame the Capper law;

4. Misleading labels on wool goods that deceive the buyers;

5. Ruin of the American industry by a flood of foreign wool goods of inferior materials and construction marked "virgin wool" without possibility of detecting the false marks:

6. Increase in cost of wool clothing;

7. Great depreciation in the market value of wool cloth and wool clothing on hand at the time Capper bill goes into effect by reason of popular prejudice against unmarked wool goods;

8. No increase in the market value of raw wool sold by the wool growers. The United States produces only one-third of the wool we consume, and less than 9 per cent. of the world's clip, so that the world's market price plus the tariff fixes the American price;

9. A tremendous impetus to the successful selling idea of the firm of wool manufacturers now in alliance with the wool growers in promoting the Capper bill.

Real Production for Consumers

The carded woolen manufacturers in their statement bring a severe indictment against Congress, charging gross neglect in the handling of the Capper bill and its predecessor the Myers bill of 1913. The statement concludes by urging that the buyers, not only of wool goods, but of merchandise and products of all kinds, be protected by a law forbidding false marks in both interstate and intrastate commerce, this being the principle of the law enacted in England thirty-six years ago and since adopted by a number of the British dominions. Several bills based on this principle have been introduced in Congress, the first one by Congressman John Jacob Rogers, of Massachusetts, in February, 1914, another by Congressman Barkley of Kentucky in 1916, and two others now pending, one by Congressman Rogers in the House and the other by Senator Lodge. The carded woolen manufacturers conclude their statement with this request: "We ask that having put the quietus on the Capper bill, you provide protection to the consumers of the country by a carefully prepared law based on the sound principle of forbidding the false marking of all kinds of goods."

The New Greens

(*Continued from page 22*)

small areas. Grass is predicted to supplant Emerald to a large extent.

In the evening shades, Nile and Spring Green are reinstated. There are some big indications of Chartreuse being worn again, and Pistache will be popular, also, the soft French Verdure shades. The newest green for evening wear, is called Meadow, and is a delightful spring-like fairly conservative shade.

Emerald, Kelly, Reseda, Nile, Harlequin, and the Verdure shades, are pure greens graded or lightened in some shades, but bearing little indication of Blue or Yellow. These pure Greens harmonize with the flame colorings, also the rust and henna shades, and pale salmon. They can also be effectively used with violet, from the pale lavendar to the deep plum tones. They are not good with pure yellows.

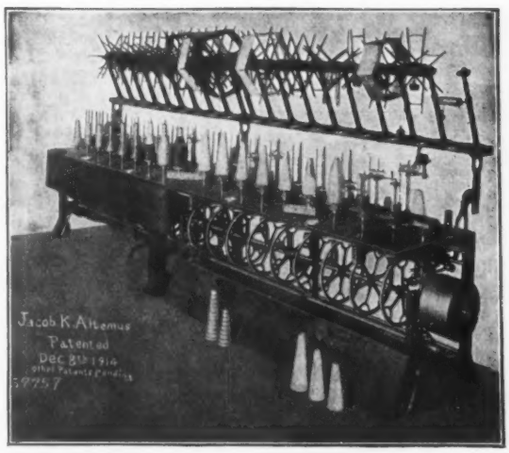
Chartreuse, Meadow, and Spring green, have a touch of yellow. The yellow greens harmonize with all tones of red, from deep mahogany to the palest rose. They also make excellent combinations with the bluish violet shades, such as Periwinkle and Cornflower. They do not harmonize with the green blues or the orange-yellows.

Lanvin, Almond Green, Persian Green, Alhambra, Pistache, and the Peacock and Turquoise shades have strong bluish casts, and go very well with the orange or gold brown shades. Lanvin and Almond Green are very smart with two new browns, called Harvest and Titian. They are lovely with Cornhusk, Cowslip, Peach, or Eldorado. They also combine well with American Beauty, Cyclamen, and the Pinkish Orchid shades; also with the new Crushed Berry and Clover shades. They do not combine well with the bluish violets or yellow greens.

Any of the brilliant shades of green are effective when used with grays or black and white, or the beige colorings. The more neutralized shades of green are less effective with black and white and gray and tan. They need either a dark strong emphasis which can be obtained from an harmonious contrasting color, or should be complemented with pale tints which are warm in color. Very pale yellow or straw or light peach should be substituted for white or pale gray or colorless tan in such cases.

2-B Winder and the Cone

Patented in the U. S. and Foreign Countries



NEW PROPOSITION

There are some 6,000 concerns in the aggregate that cover all kinds of Knitted Fabrics, everything included.

There is not one man, either manufacturer or knitter, who can honestly say that he does not have knitting trouble, and the most serious one is that caused by *tight* and *loose stitch*, which cuts all profits.

We can prove to you, if you will listen, how to abate this trouble, or better, see our winder and know for yourself.

JACOB K. ALTEMUS

Established 1865

Textile Machinery

American St. below Lehigh Ave., Philadelphia, Pa.

WILDT & CO., LTD.

LEICESTER, ENGLAND

Latest Fancy Machine for Seamless Hose & Halfhose

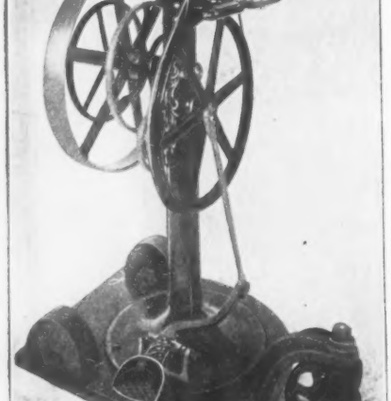
"GEORGE" Model "B"

(Patented)

Enormous variety of patterning, plain foot, high splicing, good production, simple and efficient. Full particulars and samples in U. S. A.

H. BRINTON COMPANY

Kensington Ave. PHILADELPHIA, PA.



No. 9 Foot Power Rotary Sewing Machine

An Exceptionally Efficient Machine

This Portable Foot Power Sewing Machine has earned itself a reputation for economy in hundreds of mills. Gear driven, it is easy to operate and capable of attaining a high rate of speed. It is used in various parts of the mill, principally in the dyehouse, bleachery and print room, for sewing Woolen, Cotton, Burlap and other fabrics of all weights, wet or dry. Sewing Head operates without arm or connection. Write for details.

Tillinghast Supply & Machine Co.
76 Lafayette St.
Salem, Mass.

Established 1870

JOHN HEATHCOTE & SON, INC.
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TENTERING AND DRYING MACHINES

For Woolens, Worsteds, Felts, Etc.

UPRIGHT—HORIZONTAL
TWENTIETH CENTURY

Mill Timbers and Flooring

Long and Short Leaf Yellow Pines

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Iron and Oil Removal Apparatus–Filtration Equipment–Water Conditioning Apparatus of every description

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R. H. HOOD COMPANY, Inc.
Established 1885
Manufacturers of
COMB CIRCLES and FALLERS
For Wool, Silk, Flax and Jute
WORSTED MACHINERY REPAIRS

19th and Westmoreland St. Philadelphia, Penna.
English Cast Steel Pins, Circle Plows, Roller Covering, Roller Leather

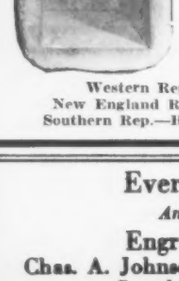
APPERLY FEEDER FOR SECOND BREAKER AND FINISHER CARDS

PERFECT MECHANISM

EFFICIENT POSITIVE UP TO DATE

FIFTEEN THOUSAND IN USE

GEO. S. HARWOOD & SON 53 STATE ST., BOSTON, MASS.



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The Centrifugal with One Moving Part

No couplings or clutches. Full freedom for loading
BALL BEARINGS—EASY RUNNING

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EST. 1868
Grinders
FOR
Woolen and Cotton Cards
Garnetts, Shears, Nappers & Calender Rolls
Write for prices on your needs
WORCESTER, - - - MASS.

Everything for Textile Printers
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BIRCH BROTHERS
Makers of
Textile Finishing Machinery and
Piece-End Sewing Machines
SOMERVILLE, MASS.

SILK GOODS MARKETS

Broad Silks Firmer As Exposition Time Nears

Trading Ahead of Volume Noted in Same Period a Year Ago—Cantons Selling Well

Trading which a year ago in the broad silk market did not assume volume proportions to any great extent until after the International Silk Exposition, has this year taken on a better form previous to this event, and during the past week this fact has been noted in many quarters. With all factors the atmosphere is showing distinct tendencies toward clearing, so that the arrival of this year's exposition will find the market in materially improved condition.

Prices Firmer

With this better form in trading has come a better tone in quotations throughout the market, a revival mostly in cantons having occurred within the week and which has tended to place prices nearer the level maintained during the fall. Today good cantons are going out of the market at prices varying from $2.65 up to $3 a yard. When the demand suffered a falling off in the later fall months these prices dropped to extremely low figures. This canton demand at that time was supplanted by one for flat crepes, and through the holiday season what selling was done was for the most part confined to this fabric. However, there has been a gradual let-down in this respect, and cantons have again come into their own and are now selling at around $3 a yard. Good flat crepes have been hard to get, and this circumstance has benefited cantons.

Mostly Spot Orders

Most orders placed are for immediate delivery, there being but very few booked for advance. Sellers are encouraged through this fact, believing their missionary work among retailers and cutters throughout the country has commenced to bear the good results hoped for it. Everywhere silks have been placed in a primary place for the attention of the ultimate consumer, and this fact has aided materially in bringing about a shortage of stocks among both of these classes of buyers. Little trading is under way in satins and taffetas, the latter particularly having fallen off within the month. Up to that time and for a period of several weeks there was a good demand for this fabric. An undercurrent of demand for georgettes and satins is to be noted in the market. However, this is not expected to materialize in booking for at least another month.

While mills are busy, though not driven, to cope with advance orders, it is expected that unusually busy times will come within the next month, which, so far as the silk market is concerned, will be "a silk month." Factors throughout the market point out that a year ago following the silk exposition the market took on an air of activity such as had not been seen in many months, and that this latter favorable condition continued up to the arrival of the summer season.

Silk Goods Trade Notes

At the spring fashion show of the National Garment Retailers' Association held in the ballroom of the Hotel Commodore on Tuesday evening, "Mountain Haze," a new color, was accorded a pleasing reception. It is of orchid tint, with variations, and is believed to be adaptable for use in sports wear, as well as evening gowns. Silks in general formed a goodly portion of the evening's presentations.

Questioning on price policy is heard in the market where considerable speculation is under way as to the reception the few advances that have been made will receive when buyers start to appear in the market in larger numbers than they have to date. However, it is maintained that prices today are but on a plane with those in force in November.

Cheaper grades of cantons are meeting with good sales at around $2 a yard. Buyers are holding back on advance orders, chiefly through their hope to see what the coming exposition brings out.

Little Change Noted In Ribbon Market

Sellers Continue in Optimistic Mood—Style Tendencies Closely Watched

Conservative buying, which has been the outstanding feature of the ribbon market for weeks and it seems since time immemorial, has experienced but little change from that order during the week. Here and there some good orders have been placed but for the most part, bookings have been on a small scale. However, with the few sales made there has been a hint at reversal of form in the activity of that branch of the market and this reversal has been such as to add value to the optimism which abounds in the rooms of nearly every seller. Overconfidence is unknown and each and every seller believes that he has done his utmost to bring about a greatly desired and needed change for this market and that it will come.

Cantons are again in the lead among buyers, sales during the week having mounted in volume to proportions not reached in a number of months. Prices have regained part of their proportions lost during the pre-holiday season buying. Demand for georgettes and fabrics of sheer order is expected to open up as the season progresses. Local business in ribbons has not yet assumed any extensive proportions, but from reports received from salesmen on the road, popularity for ribbons is gathering momentum throughout the country. Prices are firm. The coming Second International Silk Exposition is expected to do much in aid of both broadsilks and ribbons.

Staples Selling

Orders so far placed continue to be along the line of staples. This, of course, has been the rule for the past two months, and particularly was it true during the holiday season. The only qualifying condition that seems to relieve the situation is that there is more volume to those orders placed within the week. Moirès as usual are the leaders and these in varying widths, with Ombrès and Cirès following in close order. Velvets, though they in times past have gone out of season at this time so far as sellers are concerned, seem to be holding an unusually strong position.

In retail showings ribbons today are being featured more than has been noted for a number of seasons, and this latter fact tends to aid good tendencies in the ribbon market and there is no denying it needs rallying. In these showings milliners are the largest users of ribbon. They are being shown in the popular priced hats, as well as those of the more expensive order. Cutters today are possibly using more ribbons than they have for a number of years, and this likewise holds true in the lower grade dresses as well as those of higher price trend. Some unusual and pretty patterns are being shown buyers throughout the market and in nearly all houses service of the unusual order is being perfected, all looking to increases in sales.

There has been an active campaign looking to revival of the popularity of ribbons and on every hand it is asserted this revival will come. All importations from the centers of Europe are featuring ribbons of every order and it is believed this good feeling will be reflected in domestic circles. Ribbon sellers are firm believers that, no matter what may be offered to the contrary, this country and its women follow the dictates of foreign stylers in apparel, whether for the adornment of the head or body. They see in this belief most firm ground for their confidence in the revival of ribbons throughout the country.

Ribbon Trade Notes

The Chinese delegation to the Second International Silk Exposition arrived in New York Wednesday, Jan. 24, reaching the Pennsylvania Station at 9:40 a. m. They were met by the reception committee of the Silk Association of America, of which J. J. Twohey, of Bentley & Twohey Silk Co., is chairman, and were escorted to the Hotel Biltmore, where they have their headquarters while in New York. The Chinese delegation is composed of K. T. Chu, who acts as chairman; G. S. Ching, P. Y. Dang, L. R. Hsu, T. C. King, T. C. Kou, V. B. Lee, V. T. Ma, H. F. Sung, J. K. Yang and P. C. Yang.

The Japanese silk delegation to the Second International Silk Exposition left Chicago at 8 o'clock Thursday evening, spending all of Friday at Niagara, stopping at Buffalo, and reaching New York at Grand Central Station at 9 o'clock Saturday morning.

SUMMARY OF SILK CABLES

The Yokohama market continues featureless, with prices nominally unchanged. Business is of an exceedingly limited character, averaging hardly over a couple of hundred bales daily. Stocks are slightly increased. The Canton market is quiet, but steady, with lay down prices above New York quotations. Business has come to a standstill, the more as political troubles are reported to be interfering with deliveries from the interior.

The Shanghai market continues unchanged and firm. Some business in steam filatures is reported in 20/22 size for American account. Tsatlee silks are scarce and firmly held. There is some more demand for Tussah filatures, which are being traded in at varying prices, according to deliveries. Milan market firm and higher. To offset the fluctuations of the lire exchange reelers have advanced their prices about 3 per cent. On the other hand, the stiffening of the exchange rate since the last few days has halted buying for American account and the market generally is quieter.

LUNKENHEIMER
Bronze Gate Valves

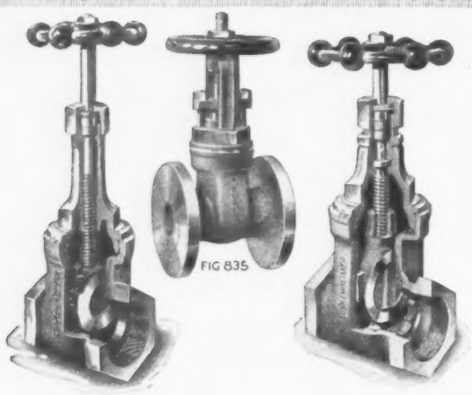

FIG 427 FIG 768

Long service life is a characteristic of Lunkenheimer Bronze Gate Valves.

The Lunkenheimer "double taper" wedge seat construction, with the disc accurately guided in its travel, eliminates "dragging" of the disc across the seating faces, the common cause of wear in most gate valves. It also provides for positive closing without undue pull on the hand-wheel.

Generous proportions, high quality materials and the renewability of all parts, including the seat rings in sizes 1 inch and larger of the Wedge Disc type, all tend to enhance their value and insure permanence in the line.

Booklet 574-ED lists all types and sizes. Shall we send you a copy?

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QUALITY
LARGEST MANUFACTURERS OF HIGH GRADE ENGINEERING SPECIALTIES IN THE WORLD
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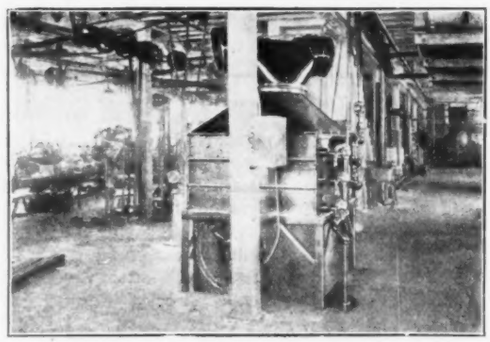
America's Best since 1862

STEAM OR DIRECT FIRED



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Equivalent to Thirty Ordinary Radiators

It is true that one Wing Scruplex Type Unit Heater produces as good results as thirty or more small direct radiators. Think of the savings in valves, fittings, pipes, etc., alone.

Only two

WING-SCRUPLEX REG. U.S. PAT. OFF. **Unit Heaters**

are heating the room shown above, the dimensions of which are 140′ long, 75′ wide, and 14′ high.

We will gladly send complete information about these heaters to any mill man who is anxious to reduce costs.

We are also specialists in Dye House and Bleachery defogging.

Write for Engineers' Data Book

Fans and Blowers *Small Turbines*

L. J. Wing Mfg. Co.

Unit Heaters *Damper Regulators*

358 West 13th Street, New York

THE EFFECT OF GREASY WATER IN DYEING

—is to cloud the colors. The best dyes that can be bought fail to produce the proper results when placed under the handicap of greasy water. And since grit mars the fabric, the need for absolutely clean water should be obvious.

Passed through

Norwood Filters

dirty slimy water becomes crystal clear—so pure it can be used for drinking purposes.

Follow the lead of many of the most successful mills, and install a Norwood Filter especially constructed to meet the needs of each user. You'll be sure of pure water which will give you the colors you really want.

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ESTABLISHED 1868

THE BABCOCK & WILCOX COMPANY — STEAM

Water Tube Boilers
Steam Superheaters
Chain Grate Stokers

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PITTSBURGH, Farmers Deposit Bank Building
CLEVELAND, Guardian Building
CHICAGO, Marquette Building
DETROIT, Ford Building
CINCINNATI, Traction Building
ATLANTA, Candler Building
TUCSON, ARIZ., 21 South Stone Avenue
NEW ORLEANS, 521-5 Baronne Street
HOUSTON, TEXAS, Southern Pacific Building
DALLAS, TEXAS, 2001 Magnolia Building
DENVER, 435 Seventeenth Street
SALT LAKE CITY, 705-6 Kearns Building
SAN FRANCISCO, Sheldon Building
LOS ANGELES, 404-406 Central Building
SEATTLE, L. C. Smith Building
HAVANA, CUBA, Calle de Aguiar 104
SAN JUAN, PORTO RICO, Royal Bank Building
HONOLULU, H. T., Castle & Cooke Building

FINANCIAL MARKETS

Less Activity in Textile Stocks

Natural Reaction from Recent Activity—Opening of New Lines of Cotton and Wool Goods

BOSTON, Jan. 24.—The somewhat narrowed demand for textile shares is a natural sequence of the recent activity and means little more than that the majority of regular investors are not inclined to increase their holdings until stimulated by some new bullish factor, and that increased activity must await the development of an outside demand. The favorable response of buyers to the opening of new lines of cotton and wool goods at moderate advances may be the factor that will stimulate increased buying of textile securities in anticipation of increased earnings for the first half of the year. There seems to be no question but that the majority of mills will require maximum production to meet the increased demand, and that, if they are well covered with raw materials, they cannot fail to net increased profits. New lines of goods are being sold at prices well below replacement cost and the only evidence of possible inflation is at present at the raw material end of the textile market.

There has been little change in values of textile shares listed on the local exchange, although there has been a steady demand of fair volume for American Woolen, Amoskeag and Pacific issues. American Woolen and Amoskeag common have advanced fractionally, while Pacific, which has sold ex-dividend at 97, is nominally unchanged from its quotation of last week with dividend on. Weakness that was shown by certain high-grade shares at today's auctions was unwarranted by any known facts and merely means that somebody has picked up at a bargain Naumkeag, Androscoggin, Edwards and Lowell Bleachery. Among the auction sales was one of a block of Ludlow Associates rights at 6¼, or an advance of ⅛ point. A small block of U. S. Worsted 1st preferred rights sold within a range of 5⅜ to 6, the latter representing an advance of $2, while 1,000 of the common rights sold within a range of 11 to 12c., the latter representing an advance of 1c.

Pacific's Record Production

An explanation of the reason for inside buying of Pacific stock, and of the advance in the expanded issue to par, is found in the official report that the company is running its worsted department close to capacity and is turning out a record-breaking production of cotton goods, or in excess of 6,000,000 yards a week. This is at the rate of 312,000,000 yards a year, while the best previous record was 235,000,000 yards. The worsted department is delivering 500,000 yards a week. Net sales are now running in excess of $50,000,000 a year, whereas 1921, when values were inflated, net sales touched a peak at $66,078,797. Maintenance of the present volume of sales should result in net profits to the year of about $5,000,000, or better than $12 a share for the new $40,000,000 of common stock on which an initial dividend at the rate of $6 has just been declared.

Judson Mills Preferred Issue

An issue of $1,000,000 of 7 per cent cumulative preferred stock of the Judson Mills, manufacturers of fine count cotton goods, Greenville, S. C., was offered for public subscription this week at $100 par by Richmond, New York and Boston bankers. The Judson operates 52,640 spindles and 1,288 looms, and has a weave shed under construction that will add between 700 and 800 looms to its capacity. The company recently increased its common stock capitalization from $1,250,000 to $2,000,000. This with the new preferred represents more adequate capitalization of the company's assets, and the money realized from the sale of the preferred will give them more adequate working capital. The preferred stock is redeemable in whole or part at 110 and accrued dividend and has the benefit of a sinking fund of $40,000 per annum, which becomes operative on March 1, 1925. In the six years ended Dec. 31, 1922, the net earnings available for dividends, after charging off liberal depreciation and deducting Federal taxes, averaged $391,529 per annum, a sum equivalent to over five and one-half times the annual dividend requirements on the $1,000,000 of 7 per cent cumulative preferred stock and to over three and one-half times the combined annual dividend and sinking fund requirements.

Boston Stock Auctions

The following sales of textile shares were made at today's auctions:

Shares.	Mill.	Par.	Price.	Chge.
2	Lowell Bleachery (½ stock)	100	66-65	— 2½
2	Merrimack, pfd.	100	87	+ 1¼
21	Lowell Bleachery	100	131	—29¼
10	Great Falls	100	75½	— 2⅜
2	Dwight	100	114¼	+ 1¼
6	Everett	100	180	— ⅛
6	Naumkeag	100	257¼	— 2¾
1	Whitman (½ stock)	100	80¾	.....
2	Wamsutta (½ stock)	100	55-54	.....
25	Androscoggin	100	162	— 8¾
55	Nashua, pfd.	100	102	— ¼
1	Union Cotton (½ stock)	100	92	.....
25	Edwards	100	115	— 5
20	Merrimack, com.	100	100	— 4½
5	Ipswich, pfd.	100	97¼	— 4½
2½	Sagamore	100	108¼	+ ⅛
7/10	American Mfg.	100	10½	.....
183	Total.			

Shares Less Active

Cutting of Dividend Rate Affects Market in New Bedford

NEW BEDFORD, MASS.—Activity in mill shares in the New Bedford market has shown a falling off compared with that of the early part of the year. Reduction in the dividend rate of one mill and the fact that some of

NOTICE

We have heard rumors that the firm of George A. Bates & Son had gone out of business. We wish to state that we have been in the roll business for 30 years and intend to remain in it. At the present time we are better equipped to handle roll repairing also new rolls than ever before.

We have seen others during that time come and go and we attribute our success to our motto which has always been "Service and A Square Deal." We brand all these rumors as malicious lies instigated to injure our business.

GEORGE A. BATES & SON
Fall River, Mass.
George E. Bates, Manager

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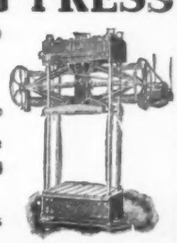

the yarn mills are not quite so active in production, coupled with the movement in some labor circles for an increase in wages, has apparently had a quieting effect on the demand for shares. Values do not show much change over those of a week ago, and most of the trading, with few exceptions, has been at prevailing levels.

Dartmouth Common Advance

Dartmouth common strengthened in value during the week, the asking price advancing to 170, a gain of 10 points, with the bid price up 2½ points to 157½. City is offered at 155, 5 points below its top mark of last year, with the bid price of 147½ unchanged. Quissett preferred dropped 1 point in the bid price to 102. Manomet has been in active demand, with sales of the stock ranging from 98 to 100. This corporation for the last few quarters has paid $1.50, and it will be surprising if the directors raise the rate to the $2 which formerly prevailed.

Manomet is reported to have had on hand a large stock of finished goods which is now moving at favorable prices, and due to the big advance in raw material, it is expected that the annual statement of the corporation next month will benefit considerably by the profitable sales of the last few months. Nonquitt is bid at 90, but there is little demand for the stock and little offered.

Sharp Shares Weaken

Sharp shares weakened following the news that the preferred dividend rate had been cut from $2 per quarter to $1.50. The preferred stock is 6 per cent. cumulative, sharing with the common up to 8 per cent., so that there is every indication of a similar cut in the common stock rate from the $2 which has prevailed for several quarters. The common stock sold at 105 and 106, with a present asking price of 105, a drop of 7 points for the week. The preferred is bid at 95, also weakening 7 points. The lowest price at which the common sold last year was 100, with a high mark of 124. The low figure for the preferred was 103, with a high mark of 108.

Wamsutta sold at 105 to 108, with more of the stock available at 110. Fractions of Wamsutta changed hands at 51 to 52, on a basis of 106 for a full share. Whitman half shares sold at 79 and 81, approximately 160 for full shares. The regular stock is offered at 165, with a bid price 10 points below this figure. Booth common sold at 180, with one sale reported as high as 185. The highest price realized for the stock last year was 175, with a low mark of 144. The stock is still in demand with 170 as the general bid price.

Butler has shown some activity, with sales ranging from 152 to 155. Nashawena is available at 137, with sales of the stock at 135 and 136. Kilburn is offered at 187½, with sales of fractions at 90 and 95, representin 180 and 190 for full shares. Potomska half shares also sold at 70 and 72½, the latter figure being the equivalent of the 145 at which full shares of the stock are offered. Soule changed hands at 220. Fairhaven common is offered at 140, with Gosnold common sought around 134. Neild is bid at 230, with 250 as the asking price.

Limited Trading

Holders Are Clinging to Their Securities on Good Prospects

Fall River, Mass.—The recent action of some half dozen or more of the local cotton mills in distributing some of their accumulated surplus in stock dividends and extra cash dividends has occasioned the withdrawal from the market of the issues of practically all of the mills having sizable quick assets, and, as for the last two weeks or more, trading in textile securities has been limited to fractional rights. The better showings of the local mills for the last quarter has also contributed to the tightening of the mill stock market as has the big cloth business of the last two weeks. Almost a record was established by the sale of over 400,000 pieces of goods in this market alone last week and those of the previous week exceeded 300,000 pieces.

Mills Are Busy

Demand for practically all constructions of both narrow and wide plain goods together with that for sateens and twills has been such that the market is fairly well sold up for the next two months and ensures another dividend quarter on earnings as against a long period where dividends had to be paid from surplus or not at all. Labor troubles are not as imminent as feared at the close of the year. The fine goods mills have made the better showing of the last quarter as they are paying practically the same for their cotton as the print cloth mills while they are getting a much larger price for their cloth.

These facts pertaining to the local situation are sufficiently evident to the large holders of Fall River textile securities to convince them that it is best to hold for better prices and brokers report the market practically bare of stocks. They are also meeting difficulty in filling orders for fractions.

Prices Fluctuate

There has been a wide fluctuation in the prices of these several rights from day to day and no two brokers are quoting the same prices on two successive days. The bid price for Union rights when first issued on Saturday was 80, but as high as 90 is said to have been bid since. Sagamore rights are still around 100 bid. The bid price for Cornell was advanced during the week from 165 to 170 and that for Lincoln from 97½ to 105 while that for Mechanics dropped from 140 to 130 for no known reason.

Financial Notes

The Hamilton Manufacturing Company, Lowell, Mass., has resumed the payment of dividends on its common stock at the rate of $4.00 annually, declaring 1 per cent., payable February 15 to stock of record January 23. As a result of the protracted strike no dividends have been paid since January, 1922, but for the last three months the company has been operating more looms than ever before in its history, and if this volume of production can be maintained an increase in the dividend rate may be expected before the close of the current year.

The Bigelow-Hartford Company has increased the dividend rate on its common stock from $6.00 to $8.00 annually with the declaration of a quarterly dividend of $2.00 per share, payable February 1, to stock of record January 24. At the same time the regular quarterly dividend of $1.50 on the preferred stock was declared.

An interesting feature of the balance sheet of the Appleton Company, Lowell, Mass., as of October 31, 1922, is the establishment of a reserve of $2,000,000 for a southern mill. The reserve for depreciation has been wiped out and that for taxes has been reduced $380,000, but the general reserve remains unchanged at $897,968, while surplus has been increased from $2,390,309 to $2,572,158. The balance sheet shows no accounts or notes payable. The real estate and machinery has been marked up approximately $1,500,000 and quick assets are slightly larger than they were in 1921.

The Connecticut Mills Company, operating mills on tire cloth and yarns in Danielson, Conn,. and Taunton and Fall River, Mass., has voted to resume the dividends on its 1st preferred stock with a quarterly payment of $1.05 a share, due February 1 to stock of record January 22. No dividends have been paid paid since February, 1921, and the accumulations at the 7 per cent. rate are now $12.25 per share.

New England Textile Stocks

Quotations based upon last sales at Boston public auctions and Boston Stock Exchange.

	Latest Sales.	Previous Sales.
American Woolen, pfd.	110⅛	110¾
Amoskeag	94¾	94
Androscoggin	170¾	175
Appleton	†195½	..
Arlington	114⅛	113¼
Bates	240	240⅜
Bigelow-Hartford, pfd.	119¼	114⅛
Boott	135⅛	..
Edwards	115	110
Esmond, pfd.	101	99
Everett	180	180½
Farr Alpaca	188	177
Great Falls	75⅛	77⅛
Hamilton Woolen	95⅞	95⅝
Hamilton Mfg.	85	75⅛
Hill	149	150
Int. Cotton, pfd.	75	78
Ipswich, com.	63¼	63
Lawrence	104	107¼
Ludlow Associates	136⅛	151¼
Lyman	166⅛	170
Massachusetts	172⅛	174½
Merrimack	100	104½
Nashua, com.	76⅛	75⅛
Naumkeag	255	..
Newmarket	†170	166
Pacific	97	98¾
Plymouth Cordage	196⅝	202¼
Tremont & Suffolk	155¼	150
York	230	205

† Old quotation.

Fall River Mill Stocks

Quotations furnished by G. M. Haffards & Co.

	Bid.	Asked.
American Linen Co.	90	95
Arkwright Mills	65	..
Barnard Mfg. Co.	125	..
Bourne Mills	145	..
Border City Mfg. Co.	104	..
Chace Mills	130	..
Charlton Mills	..	133
Cornell Mills	170	..
Corr Mfg. Co. (Taunton)	..	..
Davol Mills	..	130
Davis Mills	..	110
Flint Mills	..	170
Granite Mills	115	118
King Philip Mills	..	187½
Laurel Lake Mills, com.	55	..
Laurel Lake Mills, pfd.	100	..
Lincoln Mfg. Co.	105	..
Mechanics Mills	130	..
Merchants Mfg. Co.	..	..
Narragansett Mills	125	..
Osborn Mills	107	..
Parker Mills, com.	50	..
Parker Mills, pfd.	..	..
Pilgrim Mills, com.	..	140
Pilgrim Mills, pfd.	105	..
Pocasset Mfg. Co.	..	91
Richard Borden Mfg. Co.	..	..
Sagamore Mfg. Co.	275	..
Sanford Spinning Co., com.	..	..
Sanford Spinning Co., pfd.	..	..
Seaconnet Mills	..	50
Shove Mills	..	97½
Stafford Mills	..	135
Stevens Mfg. Co.	140	..
Tecumseh Mills	..	..
Troy C. & W. Manuf'y	..	..
Union Cotton Mfg. Co.	150	..
Wampanoag Mills	105	..
Weetamoe Mills	103	110

* New stock.

Miscellaneous Shares

Reported by M. H. Wildes & Co., Inc., Boston, Mass.

	Bid.	Asked.
Arlington	110	113
Bates	230	240
Bigelow-Hartford, com.	136	140
Brookside	180	190
Columbus Mfg.	185	..
Dwight	115	120
Edwards	115	120
Everett	180	185
Farr Alpaca	175	180
Gluck Mills	130	135
Great Falls	75	78
Hamilton Mfg	83	86
Hamilton Woolen	95	98
Lancaster, com.	140	145
Lancaster, pfd.	102	..
Lanett	125	..
Lawrence	100	105
Lowell Bleachery	130	135
Ludlow Mfg.	135	138
Lyman	185	190
Massachusetts	170	175
Merrimack, com.	100	105
Merrimack, pfd.	86	89
Nashua, com.	75	80
Nashua, pfd.	102	105
Naumkeag	255	..
Pepperell	167	170
Plymouth Cordage	95	97
Tremont & Suffolk	155	160
Waltham Bleachery	140	..
Warwick	..	100
West Point	125	128
York	115	120

N. Carolina Textile Stocks

(Taken from list of Southern Mill Stocks quoted by R. S. Dickson & Co., Gastonia, N. C., and Greenville, S. C.)

	Bid.	Asked.
Acme Spinning Co.	110	..
Am. Yarn & Processing Co.	124	..
Am. Yarn & Processing Co., pfd.	103	105
Arlington Cotton Mills	215	251
Arrow Mills	121	126
Clara Mfg. Co.	101	..
Cabarrus Cotton Mills	130	..
Cabarrus Cotton Mills, pfd.	103	106
Cannon Mfg. Co. (par $10)	12⅛	..
Chadwick-Hoskins Co. (par $25)	18	..
Chadwick-Hoskins Co., pfd.	102	104
Clover Mills	99	..
Climax Spinning Co.	185	191
Crescent Spinning Co.	126	..
Dixon Mills	119	..
Dresden Cotton Mills	225	235
Durham Hosiery, pfd.	80	86
Durham Hosiery "B"	19	21
Eastern Mfg. Co.	96	101
Efird Mfg. Co.	147	..
Erwin Cotton Mills Co.	116	..
Erwin Cotton Mills Co., pfd.	103	106
Flint Mfg. Co.	165	..
Gibson Mfg. Co.	105	..
Globe Yarn Mills (N. C.)	62	69
Grace Cotton Mill Co.	..	..
Gray Mfg. Co.	220	..
Hanes, P. H., Knitting Co.	15	16¼
Hanes, P. H., Knitting Co., pfd.	104	..
Henrietta, pfd.	105	109
Jennings Cotton Mills	224	231
Linford Mills	92	95
Lola Mfg. Co.	95	100
Locke Cotton Mills Co.	160	..
Myers Mill	..	72
National Yarn Mill	170	176
Parkdale Mills	123	131
Perfection Spinning Co.	92	95
Priscilla Spinning Co.	60	64
Ranlo Mfg. Co.	125	..
Rex Spinning Co.	..	88
Rex Spinning Co., pfd.	88	..
Ridge Mills	..	..
Rowan Cotton Mills Co.	103	108
Roanoke Mills, 1st pfd.	103	..
Roanoke Mills, 2d pfd.	..	100
Rosemary, pfd.	99	101
Rhyne-Houser Mfg. Co.	98	100
Seminole Cotton Mills Co.	102	..
Sterling Spinning Co.	130	..
Superior Yarn Mills	98	101
Victory Yarn Mills Co.	94	100
Victory Yarn Mills Co., 8% pfd.	100	109
Winget Yarn Mills Co.	77	..
Wiscasset Mills Co.	150	..

COTTON YARN MARKETS

QUOTATIONS

(Corrected at close of business Wednesday)

CARDED (Average Quality)

SINGLE SKEINS—WARP TWIST

4s to 8s..—	—44	20s.....—	—50
10s.....—	—45	24s.....—	—54
12s.....—	—46	26s.....54	—55
14s.....—	—47	30s.....—	—59
16s.....—	—48	40s.....67	—70

TWO-PLY SKEINS

2-8s.....—	—44	2-24s.....57	—58
2-10s.....44	—45½	2-26s.....58	—59
2-12s.....—	—46½	2-30s.....62	—63
2-14s.....47½	—48	2-36s.....67	—70
2-16s.....48½	—49	2-40s.....68	—70
2-20s.....51	—53	2-40s high..74	—75

SINGLE WARPS

10s.....—	—46	24s.....—	—56
12s.....—	—67	26s.....—	—67
14s.....—	—48	30s.....60	—62
16s.....—	—49	40s.....—	—70
20s.....50	—52		

TWO-PLY WARPS AND TUBES

2-8s.....—	—45	2-24s.....—	—58
2-10s.....—	—46	2-26s.....—	—59
2-12s.....—	—47	2-30s.....62	—63
2-14s.....—	—48	2-40s ord...67	—70
2-16s.....—	—49	2-40s high..74	—75
2-20s.....52	—53	2-50s.....—	—85

8/3 and 4-ply skeins and tubes; tinged, 42c.; white, 44c.; 2-10s and 2-12s slack twist, 46c.

HOSIERY CONES

(Frame Spun)

8s.....42½	—	22s.....46	—48
10s.....41½	—43	22s Jac. Sil.47	—49
12s.....42	—44	24s.....48	—49
14s.....42½	—44½	26s.....49	—50
16s.....43	—45½	30s tyg in..51	—53
18s.....43½	—46½	30s ex qual.56	—57
20s.....44½	—47	40s.....64	—67

COMBED PEELER (Average Quality)

WARPS, SKEINS AND CONES

2-20s.....—	—65	2-50s.....90	—95
2-30s.....—	—70	2-60s.....1 00	—1 05
2-36s.....75	—77	2-70s.....1 10	—1 15
2-40s.....78	—80	2-80s.....1 25	—1 30

SINGLES

12s.....53	—54	30s.....66	—69
14s.....54	—55	36s.....75	—78
16s.....55	—56	40s.....78	—80
18s.....56	—57	50s.....90	—95
20s.....57	—58	60s.....1 00	—1 05
24s.....60	—61	70s.....1 10	—1 15
28s.....64	—65	80s.....1 25	—1 30

MERCERIZED CONES

(Combed, Ungassed)

2-26s.....79	—84		
2-30s.....83	—88	2-50s.....1 05	—1 15
2-36s.....90	—95	2-60s.....1 18	—1 28
2-40s.....95	—1 00	2-70s.....1 33	—1 40
2-45s.....1 00	—1 10	2-80s.....1 45	—1 60

EASTERN PEELERS

SINGLE CONES

	Carded		Combed	
8s	42	—44	52	—56
10s	43	—45	53	—57
14s	45	—47	57	—61
16s	46	—48	58	—62
18s	47	—49	59	—63
20s	48	—50	60	—64
24s	50	—52	64	—66
26s	51	—54	66	—70
30s	—..		70	—74
36s	60	—65	78	—82
40s	65	—70	82	—87
50s	—..		92	—98
60s	—..		1 05	—1 10

COMBED CONES, WARPS AND TUBES

2-20s.....67	—70	2-50s.....1 00	—1 05
2-26s.....73	—75	2-60s.....1 10	—1 18
2-30s.....77	—80	2-70s.....1 20	—1 30
2-36s.....85	—90	2-80s.....1 30	—1 40
2-40s.....90	—95		

COMBED SKEINS

2-20s.....67	—72	2-50s.....1 02	—1 05
2-30s.....77	—82	2-60s.....1 12	—1 20
2-36s.....87	—92	2-70s.....1 22	—1 30
2-40s.....92	—97	2-80s.....1 32	—1 40

Yarns Tend Upward; Conditions Spotty

Orders Comparatively Small But Aggregate Satisfactory—Knitting Yarns Perplexing

In spite of apparent lack of interest in large or important transactions the operations of buyers during the week have totaled a very respectable volume. It is difficult to interest the trade generally in yarns for distant delivery and yet they anticipate difficulty in securing what they want, which difficulty is likely to be increased as time goes on. Nevertheless, there is a feeling that, in spite of all this disposition to hold back on part of buyers, trade within the next few weeks is likely to show material increase and at prices higher than the level today.

Possibilities of Advance

Of course there is a figure, which when reached, will be the limit at which active business can be done. What this limit is few are willing to prophesy and yet there have been expressions in the market this week that yarns could go at least ten cents higher and have no effect upon the trading. This is tantamount to saying that 2-30s warps will be taken just as freely at 70c. and 2-20s warps at 60c. as they are at today's level.

The price asked by spinners is decidedly above the figures that are obtainable from the consumer. It is reported that a sale of 2-30s has been made this week in Philadelphia at 63 cents and that the quality of the yarn is not the best to be had. Notwithstanding this fact other dealers claim they are willing to sell fair quality 30s at 62 cents and are finding it difficult, if not impossible, although they are holding higher grade yarn at 63c.

Certain consumers are showing more of a disposition to operate. Towel manufacturers are buying yarn in a better way than for some time past. Also, as stated last week, there is more inquiry from the webbing trade, and a fair quantity of yarn is going to dress goods manufacturers.

Hosiery Yarn Outlook Perplexing

The general tendency of the yarn market to advance is reflected in hosiery yarns. Substantially higher prices are quoted by knitters and in instances have been paid by the dealer. For instance 45 cents has been accepted by a certain yarn house for 12s cones and yet it has yarn of this number on hand which would be sold at 43 cents. The attitude of New York State knitters is a perplexing one. It is very generally believed that these manufacturers will need to buy considerably more yarn before the season is completed. Manufacturers of light-weight garments are generally well supplied up to May and June, but beyond that have little with

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Bladenboro Cotton Mills—Vass Cotton Mills
8s to 30s Extra Carded

T. J. PORTER & SONS
Direct Representatives of large Spinners of the finest classes of
Cotton, Woolen, Worsted, Mohair and Linen Yarns
268 Fourth Avenue New York
119 South Fourth Street Philadelphia
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ABERFOYLE MANUFACTURING COMPANY

MERCERIZED YARNS

MAIN OFFICE
EMPIRE BUILDING
PHILADELPHIA

ADAMS-FRANKLIN BUILDING
CHICAGO

WESTAWAY BUILDING
HAMILTON, CANADA

MILLS
CHESTER, PA.

Cotton Yarn Markets—Continued

which to fill their contracts. On heavy-weights, however, it is the belief that orders should have been placed ere this for March, April delivery. In spite of this fact there seems to be absolutely no interest in the market. Ordinarily big operators would make a tentative bid a couple of cents below the market if they needed yarn, but today they tell the salesman he is crazy to quote the prices he does and that they are not in the market. Nevertheless, houses handling knitting yarns find it possible to sell them in other quarters, and while individual orders may not be as large as those ordinarily placed in New York State, the aggregate is fairly satisfactory. It would not surprise dealers to see knitting yarns go to 50c. basis for 10s, although it is reported in certain quarters there is a fair stock on hand at mills.

Scattered Yarn Business

Cotton Yarns at Higher Levels Find Limited Interest

PHILADELPHIA.—Further advances in quotations on cotton yarns are noted during the week following strong developments in raw cotton. As a consequence dealers report higher prices named by spinners, especially in carded yarns, although it is not possible to obtain these levels in the limited business reported. Combed yarn prices have also been advanced, but conditions in that branch are not so favorable, so that these prices have not the same strength.

Inquiry for yarns is scattered. There appears to be broad interest, but it is confined largely to small lots from a single case up to 5,000 or 10,000 pounds at the most. Keen competition for business also tends to hold prices down.

Weavers' Fair Business

Weavers apparently offer the best chances for business, with a more general interest at a price. Therefore, with 2-20s tubes quoted at 54 to 55c., sales are noted here at 49 and 50c.; warps also were sold at 50 to 52c. On 2-30s warps, spinners ask 63 to 65c., with sales here not over 62 or 63c. An active number is 2-24s skeins, which has had big demand, especially for braid mills down East. As a result dealers say it is difficult to get deliveries or even a quotation at around 58 to 59c. The same conditions apply to high grade 2-40s. With 3-8s white offered at 43c., 4-9s are quoted at 46½c.; 22s single skeins sold at 49c. Specialties seem to form an important part in the trade today.

Carded Knitting Quiet

Carded knitting yarns continue to be rather quiet. Many manufacturers are said to declare they find it impossible to get business on a basis above 45c. for 30s in underwear, so they are not showing much interest in yarns. On the other hand, there are other mills reported actively engaged on orders. For 10s frame spun 42½ to 43c. is generally noted; a good 26s is noted offered at 51c., and a high grade 28s sold at 52c. Good double carded 30s are quoted 58 to 59c., but it is difficult to get more than 55c.

Combed Yarns Erratic

Combed yarns present about the most unsatisfactory item on the list. The demand for these yarns is limited and consequently prices are erratic, so that it is difficult to state just where they stand, because of varying conditions. While prices have been advanced beyond the levels noted in another column, sales have been made at about the figures given, as buyers will not meet these higher levels. With 30s single quoted at 68 to 69c., sales are noted at 66c. and some at 68c.; 40s sold at 78 and 80c. Ply yarns are quiet, with mercerizers slow in taking deliveries. Mercerized yarns are unchanged. There is limited new business with strong competition, thus affecting prices.

Phila. Cotton Yarn Note

Arthur Casler, of Amsterdam, N. Y., is now connected with the cotton yarn department of Chas. J. Webb Sons Co., Philadelphia. He is covering up-state trade in the place of Charles L. McLean, who has severed his connection with this company.

Yarn Demand Quickens

Carded Yarns Advance, but Combed Yarns Remain Irregular

BOSTON.—The further sharp advance in raw cotton prices has quickened demand for carded yarns and, to a less extent, for combed yarns; prices of the former are up about 5 per cent., and a proportionate advance is being quoted on most combed yarns, but, with the exception of medium and coarse count cones, the advance is not being generally enforced. Following Tuesday's radical advance in cotton prices many spinners and dealers withdrew quotations temporarily and refused to quote excepting on firm offers.

Fair Tire Yarn Demand

An incident fraught with considerable possibilities is the development within the last week or ten days of the first really sizable demand from tire cloth manufacturers for 23s carded yarn. The business, which aggregates well over 1,000,000 pounds, in lots ranging from 100,000 to 400,000 pounds, comes from both large and small manufacturers, and included among the former are two or three who spin the greater part of the yarns used. It is impossible at the moment to estimate the size that this buying may develop, but a significant factor is that this is the first buying of tire yarns of any volume since 1920. The orders were scattered, but most of them went to combed yarn mills. The prices at which the business was placed were ridiculously low as compared with quotations for cor-

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COTTON YARNS
All Qualities

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COTTON YARNS of all descriptions
77 Summer Street, Boston 9, Mass.
Correspondence Solicited

GATE CITY COTTON MILLS
Manufacturers of Superior Quality
WHITE HOSIERY YARN on CONES
We sell direct to Knitters and guarantee satisfaction
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COTTON HAROLD W. O'LEARY COMPANY YARNS
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COTTON YARNS FOR ALL PURPOSES
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122-124 Chestnut Street, PHILADELPHIA, PA.

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Manufacturers of
MERCERIZED COTTON YARNS Give the high Silk-like lustre
In Knit Goods and Woven Fabrics
NOVELTY YARNS Poucle, Bourette and Spirals in Cotton, Wool, Worsted, Mohair and Silk
COTTON WARPS On Beams, Jacks, Spools and Tubes
In Fancy Twist, Colors and Printed

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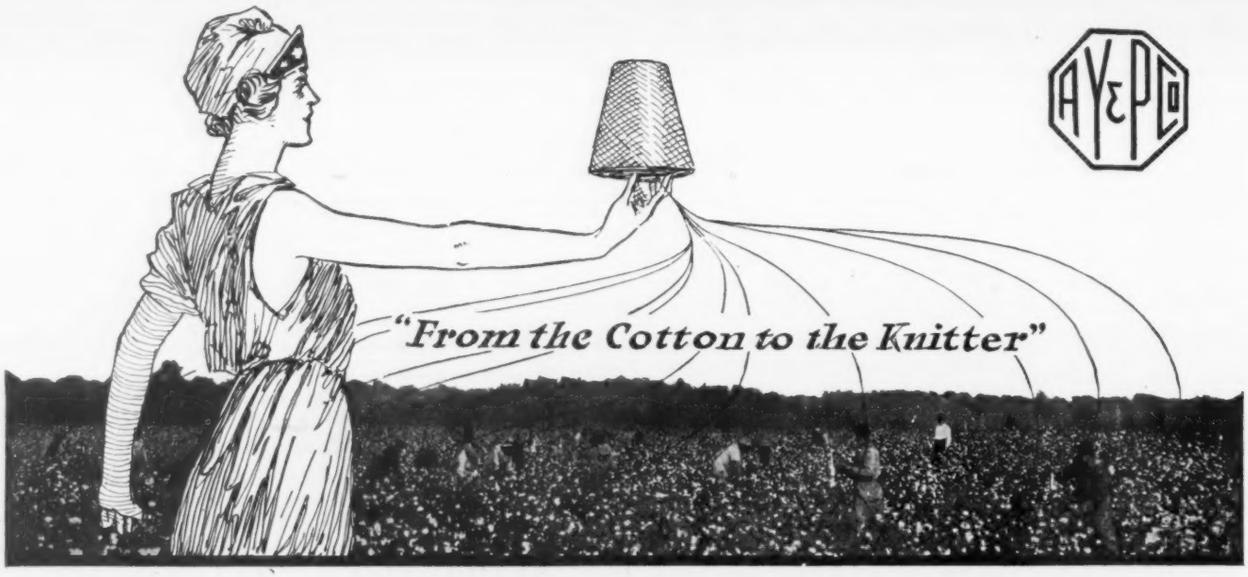
Specialists in Mercerized Yarns CHESTER, PA.
Warp Mercerizing for the Trade
Gassed—Natural—Bleached—Colors
DOUBLE MERCERIZED SPECIAL PROCESS



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HIGH GRADE COMBED AND CARDED YARNS—16s to 80s

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PAULSON, LINKROUM & CO.

INC.

COTTON YARNS

WEAVING AND KNITTING

Sole Agents

STANDARD COTTON MILLS

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Highest Quality Mule Spun Yarns

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Sole American representative of

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Spinners and doublers of fine cotton yarns especially adapted for the making of laces, voile, fine hosiery dress goods and insulating wires.

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Attractive propositions to offer on Hosiery Silk and Worsted Mixtures for Heather Effects.

COTTON—WOOL—WORSTED—MERINO

O. S. HAWES & BRO.

FALL RIVER, MASS.

COTTON YARNS **ALL FORMS AND NUMBERS**

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HAMILTON CANADA

Textile Engineers

We design, supervise construction and completely equip mills for any textile process.

Textile and Knitting Mill Machinery

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FIBRE HEAD WARP SPOOL

After 14 years of the hardest mill use has demonstrated that it is

Durable—Economical

Write for particulars of the added traverse with corresponding increase in yardage—an important feature of this spool.

Prompt Deliveries

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Burlap—

Write for our low prices. We carry in stock all grades for every purpose.

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IMPORTERS BURLAP
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Parks-Cramer Company

Engineers & Contractors
Industrial Piping and Air Conditioning
Profit by
"HIGH DUTY CLIMATE"
Fitchburg Boston Charlotte

Cotton Yarn Markets—Ctd.

responding counts of ply weaving yarns, the range being from 48 to 50c., as compared with a current basis of 52 to 53c. for 2-20s carded warps of average quality. No doubt the low prices had something to do with the placing of the orders at this particular time. It is interesting to note that one of the tire weavers admitted that he would be in the market during the year for at least 5,000,000 pounds of carded 23s.

Carded Yarns Strong

All staple counts of carded weaving yarns are extremely strong, with as high as 54c. paid for 2-20s carded warps. A fair quotation for this count is 52 to 53c., with 2-30s selling at 61 to 62c. and occasionally as high as 63c. Most southern spinners ask a minimum of 42c. for 10s frame-spun cones, and 47c. for 22s. Prices of eastern hosiery yarns are only 1 to 2c. higher. Increased strength is noted on eastern combed peeler cones, most spinners asking a basis of 60 to 62c. for 18s and 58c. being an inside price. For the finer counts most eastern spinners want a basis of 85 to 87c. for 40s. Asking prices are up fully 5 per cent. on combed weaving and mercerized yarns.

Watching Yarn Market

Some Buyers in Mid-West Resisting Rise in Cotton Yarns

CHICAGO.—The majority of hosiery and underwear as well as outerwear knitters report a satisfactory amount of orders booked, especially when comparisons are made with the same date a year ago. On the other hand manufacturers who sell direct to retail trade advise that the smaller retailers are reluctant to place orders for goods priced on the present cost of yarns. They express the view that the public will not pay the advanced prices, until necessity compels.

Tens single, ordinary carded yarn on cones, hosiery twist, has been quoted at 42 to 46c.; 20s single at 47 to 51c.; 30 single 54 to 58c.; 2-10s, soft twist skeins were held at 46c.

Mercerized yarns do not register much change to date, although the market has an undertone of increased firmness. An excellent quality in 2-60s combed peeler mercerized, can still be purchased at $1.30.

Lancashire Short Time

MANCHESTER, ENG., Jan. 9.—The Spinners' Federation committee on Jan. 9 considered the state of trade and it was decided to take a ballot of the members using American cotton to ascertain whether they are agreeable to continue short-time working to the extent of running the mills only 35 hours a week instead of 48 until the end of February. It may be mentioned that organized curtailment of production has been in operation on the lines indicated above since Sept. 30. Ballot papers are to be issued immediately and the result will be known on Tuesday, Jan. 30.

CANNON YARNS

Cotton Yarns *of* Quality

Quality:—We invite inquiries from the Knitter who puts *Quality* above *Price*—Who is proud of his product and guards it jealously. *Cannon Yarns* are dependable—The same high quality is maintained year after year.

The yarn is the product of our own mills, and back of every pound is the guarantee of

THE CANNON MILLS
INC.
From Spinner Direct to Manufacturer
PHILADELPHIA

New York Providence Boston
Reading, Pa. Chicago Amsterdam

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COTTON PRODUCTS COMPANY

High Grade Warps
for
MERCERIZING

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Cotton Yarn
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Cotton Yarn Dept.
MERCERIZING
BLEACHING
DYEING
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All Counts from Ball Warps and Skeins
Worsted Yarn Dept.
SKEIN DYEING OF
ALIZARINE COLORS
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ACID COLORS
For the Knitted Outerwear Trade
PAWTUCKET, R. I.

YARNS FOR KNITTERS
Cotton
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CAMERON & PFINGST, Inc.
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Manufacturers of
MULE SPUN
COTTON YARNS
Double Carded Combed
SPECIAL MERINO
For Knitting and Weaving
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COTTON YARNS
AN INCORPORATION OF SOUTHERN SPINNERS
FROM PRODUCER DIRECT TO CONSUMER
237 Chestnut Street Philadelphia, Pa.
Eastern Office, 336 Grosvenor Bldg., Providence, R. I.
MILLS DESIRING DIRECT REPRESENTATION AND HAVE THEIR PRODUCT SOLD UNDER THEIR OWN MILL NAME WILL PLEASE COMMUNICATE

RICHARD B. LEWIS ASSOCIATES
YARNS
All Descriptions
327 So. La Salle Street
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MONUMENT MILLS, Housatonic, Mass.
HIGH GRADE COTTON YARNS, White, Colors, Bleached
On Beams, Jack Spools, Cones, Skeins, and Chain Warps
FAST-BLACKS & COLORS { For Woolen Mills a Specialty } WE SELL DIRECT

COTTON MARKETS

Cotton Reacts from the 29-Cent Level

Buying to Fix Prices Less Active—Speculative Sentiment More Divided—Goods Strong

The question uppermost in the minds of many in the New York cotton trade toward the end of the week was whether the advance to a little over 29c. for May contracts had marked the culmination of the bull movement. There were evidently two opinions on the subject, and while the market continued to attract buyers on declines, there was quite an obvious disposition to sell on advances. This gave the market more of a two-sided appearance than noted previously since the culmination of the first bull movement of the season around the 26½c. level last November. It may be recalled that after selling at 26.45c. for March contracts on Nov. 9, the price broke to 24.09c. for that delivery on Dec. 6, after which it advanced more or less steadily until it reached approximately the 29c. level on last Wednesday. May at that time sold at 29.05c. Since then fluctuations have been nervous and irregular, and there have been rumors that spot-holders, while pressing no cotton on the market, were showing a disposition to supply buyers more freely.

Of course, there has been talk of 35 and 40c. cotton before the end of this season, but the price which has been most generally and widely advertised as a bullish probability has been 30c. Possibly it was the proximity of this level which tended to slop up the buying movement as the market reached 29c. for May contracts. It almost invariably happens that people who have been holding for a round figure like 30c. think it wise to begin selling before the market quite reaches the anticipated level. It sometimes happens, also, that people who have been holding for a certain price see the market nearly reach it and then react, sell a little more freely on the reaction than they would have done had the price continued to advance. Such considerations as these probably played a part in the hesitation shown after the advances of the earlier week, and may also have accounted partially for the failure of continued bullish reports from Manchester and the domestic goods trade to further stimulate buying.

Another feature which has contributed to the more reactionary average of sentiment has been a tapering off in the demand from the trade. For the last three or four weeks one of the chief or most important elements of support in the futures market has been buying by brokers with trade connections, which was attributed to fixing prices on call cotton. It is quite conceivable that this interest has now been very considerably reduced and that from now on, unless there is a revival of speculative interest, the market will be more dependent upon the development of fresh trade demand for its support.

Aside from this, there has been selling of new crop months on more favorable weather reports from the South, particularly from the Southwest. The drouthy conditions which have prevailed there since nearly the first of December have been relieved to some extent at any rate.

The following table shows Thursday's closing quotations in the leading spot markets of the country, with the usual comparisons:

Markets	Jan. 18	Jan. 25	Chg.	Last Year	Sales
Galveston	28.05	28.60	+ .55	16.20	13,139
N. Orleans	27.63	28.63	+1.00	15.50	12,774
Mobile	27.50	28.25	+ .75	15.25	72
Savannah	28.16	28.75	+ .59	....	4,955
Norfolk	28.25	28.75	+ .50	15.75	2,340
New York	28.15	28.60	+ .45	16.70	....
Augusta	28.19	28.75	+ .56	....	3,250
Memphis	27.75	28.75	+1.00	17.25	22,200
St. Louis	27.75	28.50	+ .75	18.00	....
Houston	27.75	28.55	+ .80	15.85	14,376
Dallas	27.15	27.70	+ .55	15.45	13,196

The following differences on and off middlings are given as compiled from the reports received by the New York Cotton Exchange. The cotton grades marked ** are not deliverable on contract:

	Dallas.	Mem-phis.	Mont-gomery.	Au-gusta.	Aver-age.
WHITE GRADES					
M. F.	1.25†	1.00†	1.00†	1.13†	.99†
S. G. M.	1.00†	.75†	.75†	.88†	.75†
G. M.	.75†	.50†	.50†	.63†	.51†
S. M.	.50*	.25†	.25†	.33†	.38†
S. L. M.	.38*	.50*	.38*	.32*	.36*
L. M.	.87*	.75*	.87*	.75*	.77*
**S. G. D.	1.50*	1.25*	1.50*	1.13*	1.31*
**G. O.	2.25*	2.00*	2.00*	1.50*	1.89*
YELLOW TINGED					
S. G. M.	.50†	.25†	.50†	.50†	.40†
G. M.	Even	Even	Even	Even	.03*
S. M.	.50*	.25*	.50*	.50*	.43*
**Middling	1.50*	1.00*	1.00*	1.00*	1.18*
**S. L. M.	2.00*	1.50*	1.75*	1.50*	1.68*
**L. M.	2.50*	2.25*	2.50*	2.00*	2.20*
YELLOW STAINED					
G. M.	.87*	.75*	.87*	.75*	.75*
**S. M.	1.50*	1.00*	1.50*	1.25*	1.48*
**Middling	2.25*	1.75*	2.00*	1.75*	2.00*
BLUE STAINS					
**G. M.	1.00*	1.00*	1.00*	1.00*	1.03*
**S. L. M.	1.50*	1.25*	1.50*	1.50*	1.48*
**Middling	2.00*	1.50*	2.00*	2.00*	1.93*

* Off middling. † On middling.

COTTON STATISTICAL DATA

FLUCTUATIONS OF FUTURES

Option.	Closed, Jan. 19.	For week—High.	For week—Low.	Closed, Jan. 25.	Chge.
January	27.28	28.85	27.50	28.35	+1.07
February	27.39	28.90	28.45	28.45	+1.06
March	27.55	28.87	27.60	28.53	+ .98
April	27.63	28.32	28.30	28.62	+ .99
May	27.72	29.05	27.88	28.71	+ .99
June	27.57	28.57	28.57	28.57	+1.00
July	27.43	28.79	27.59	28.42	+ .99
August	26.93	28.25	27.47	27.97	+1.04
September	26.41	27.90	26.76	26.76	+ .35
October	25.89	26.77	25.99	26.31	+ .42
November	25.78	26.15	26.15	26.15	+ .37
December	25.67	26.48	25.70	26.00	+ .33

SPOT FLUCTUATIONS FOR WEEK (MIDDLING)

	New York.	New Orleans.	Liverpool.
Friday, Jan. 19	28.30c.	27.88c.	16.20d.
Saturday, Jan. 20	28.40c.	28.00c.	Holiday
Monday, Jan. 22	28.15c.	28.00c.	15.99d.
Tuesday, Jan. 23	28.75c.	28.38c.	16.12d.
Wednesday, Jan. 24	28.60c.	28.63c.	16.49d.
Thursday, Jan. 25	28.60c.	28.63c.	16.53d.

SPOT FLUCTUATIONS AND STOCKS

	Spot Prices.	This Week.	Last Year.
Galveston	28.60c.	328,677	350,416
New Orleans	28.63c.	221,266	382,423
Mobile	28.25c.	10,491	19,728
Savannah	28.75c.	71,756	154,566
Charleston	....	69,885	90,877
Wilmington	....	19,760	41,827
Norfolk	28.75c.	104,520	139,678
Baltimore	29.25c.	3,066	1,696
Augusta	....	68,100	136,919
Memphis	28.50c.	164,982	246,424
St. Louis	28.50c.	19,700	28,623
Houston	28.55c.	330,399	304,088
Little Rock	28.00c.	54,102	64,858

If the aim of a knitter is to make a durable, uniform, and elastic fabric; to give it a good lustre where lustre is desired; to cut down the cost of menders, and the loss in seconds, it will be to his interest to investigate the yarns of our mills.

Where something new is being tried out, ask one of our salesmen to call and arrange for a sample order. "One example is worth a thousand arguments."

WILLIAM WHITMAN COMPANY, INC.

BOSTON NEW YORK PHILADELHHIA CHICAGO

SOLE AGENTS FOR

MANOMET MILLS ACADIA MILLS

NONQUITT SPINNING CO. MONOMAC SPINNING O.

DIXIE MERCERIZING CO. DIXIE STRENGTH QUALITY LUSTRE CHATTANOOGA, TENN. REG. U.S. PAT. OFF.

Dixie Mercerizing Company

of Chattanooga, Tenn.

Processors of Cotton Yarns

Announces the Opening

on February 1st, 1923

of its Western Selling Office

817 Old Colony Life Insurance Building

Chicago, Ill.

In Charge of Mr. M. A. Henderson

REPRESENTATIVES: Philadelphia, Pa., Cameron & Pfingst—Reading, Pa., Cameron & Pfingst—Toronto, Can., Slater & Co.

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LOOM PICKERS *and*
LOOM HARNESSES
GARLAND MFG. CO., SACO, ME.

The Halliwell Company

Dyers, Bleachers and Mercerizers of Cotton Yarns in Warps or Skeins

High Class Mercerizing in warps Only — Fast Colors A Specialty

A new plant, latest and most modern machinery and equipment, backed by thirty-five years of specialized experience, guarantees service and satisfaction.

The Halliwell Company
PAWTUCKET, RHODE ISLAND

BOX SHOOKS
of Superior Quality

We have been making box shooks for textile manufacturers since 1892, and have built up our business by giving our customers satisfactory service, prompt attention and the best material of its kind. We handle crating material and lumber of all kinds.

C. M. Wall & Son
Sales Office: LEXINGTON, N. C.

It will not obligate you in the slightest to send us your specifications and let us quote prices.

Plants at
Durham, N. C.
Southmont, N. C.
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EXCELSIOR KNITTING MILLS
Union, South Carolina
Announce the Exclusive Sale of their
High Grade Carded Knitting Yarns
through
ALBERT IVINS CROLL
BOSTON and PHILADELPHIA

SOLWAY DYEING & TEXTILE CO.
PAWTUCKET, R. I.
Dyers, Bleachers and Mercerizers of Cotton Yarns, Warps or Skeins ABSOLUTELY FAST COLORS

Quality First

CLARENCE L. MEYERS
COTTON **YARNS**
Drexel Building, Philadelphia

COTTON YARNS PLUS SERVICE
ANY COUNT OR VARIETY
EASTERN OR SOUTHERN
GREY OR PROCESSED
Advice Based on Our Experience of Thirty Years in Bleaching, Dyeing, Mercerizing, Etc. at your Service
E. J. McCAUGHEY, 51 Arlington St., Pawtucket, R. I.

Florence Thread Company
FLORENCE, N. J.
OFFERS TO
Hosiery and Underwear Manufacturers
ACCURATE COLOR MATCHING
Prompt Deliveries—All Colors
Sewing, Seaming and Splicing Threads

COTTON WARPS
DANA WARP MILLS Westbrook, Maine
Cotton Yarn and Warps, Carded and Combed
WHITE and COLORED SINGLE and PLY SELL DIRECT

Manufacturers
J. J. KENYON MFG. CO.
SILK FINISH TAPES and BRAID
GLAZED AND COLORED YARNS
ON SPOOLS, TUBES, CONES, ETC.
For Manufacturers' Use PAWTUCKET, R. I.

DYERS of all kinds of YARNS
For Manufacturers of Men's Wear, Dress Goods, Carpets, Rugs, Upholstery, Hammocks, Shoe Goring, Webbing, Gas and Electric Tubing, Braids and Novelties. Better work, prompter, better service than you get elsewhere.
T. BROPHY'S SONS, Jasper St., above Clearfield St. Established 1845 Philadelphia, Pa.

RHODE ISLAND PROCESSING CO. INC.
converters of
Cotton Yarns - Mercerizing - Dyeing
Bleaching and Winding
Mills at Coventry, R. I. Samples Submitted on Request

Cotton Markets—Continued

Better Call for Staples

Expect Premiums to Widen—Labor a New Crop Factor

MEMPHIS, TENN. — Demand for staple cottons has picked up perceptibly, and while the volume of sales is still unsatisfactory inquiry leads to the belief that increasing activity is to be expected. Steamship agents say their bookings so far this month have been ahead of last year for the month of January; most of the space booked is for Liverpool, and is being supplied by the territory around Memphis rather than the strictly local market itself.

Strict middling 1 5-16 staples sold on this market during the week at 36c, while strict middling 1 1-8 to 1 3-16 sold at 32c. About a year ago when middling cotton was quoted fully 10c a pound under the present quotation good middling 1 1-4 to 1 5-16 staples brought 44c. Middling cotton is now bringing the full quotation while middling 1 1-16 cottons are selling at 29c. Everybody is talking 30c. cotton and a widening of premium differences. Points in Arkansas report sales of strict middling 1 3-16 at 31 to 33c., while Canton, Miss., reports a sale of good middling 1 3-16 to 1 1-4 at 32 1-2c., which price seems to be out of line. There is still an eager demand for low grades with prices ranging from 27 1-2 to about 30c. A good ordinary blue, Missouri cotton, sold at 25 1-2c., which was the week's lowest sale price.

Labor Situation a Worry

With preparations on an active scale for the new crop not far ahead the labor situation is causing worry not only to the farmer but to the southern cotton trade. A conference is being held at the cotton exchange this week with a view of petitioning Congress to amend the immigration laws to enable desirable farm labor to come to this country. Negro labor is drifting away from cotton fields.

Not only is the total stock at Memphis dwindling rapidly, but the unsold stock is being reduced at an even faster rate. This may be accounted for in part at least by speculative buying which is now extending in a larger way to staples upon the assumption that differences are bound to widen whether there is further important advance in short uplands or not.

Market Statistics

BASIC MIDDLING

	Sat., Jan. 20.	Sat., Jan. 13.
10 markets average..	28.15c.	27.49c.
Memphis	28.25c.	27.50c.

PREMIUM STAPLES

First Sales Factors' Tables Memphis.

Grade Strict Middling			
1¼"	33½-34½c.	1¼"	30-32½c.
1 3/16.....	31½-33c.	1 1/16.....	29-32c.

CURRENT SALES

	For week	Week previous	Week before
Memphis, total 21,000		15,750	11,100
Including f. o. m...	9,900	5,550	4,700
10 markets, total....84,592		77,690	58,869

MEMPHIS RECEIPTS, SHIPMENTS, ETC.

	For week.	Last year.	Year before.
Gross receipts	27,131	17,185	21,979
Shipments	35,050	28,122	23,663
Net receipts	3,551	4,039	9,404
Total since Aug. 1, net 307,135		284,318	267,959
Total Stock 159,588		251,411	373,557
Decrease for week..	8,000	6,000	300
Estimated unsold stock in hands of Memphis factors..	64,000	140,000	277,000
Decrease for week..	10,000	9,000	4,000

Extra Staple Cottons

Prices Lag Behind Those of Upland Spots and Futures

BOSTON, Jan. 24.—Demand for domestic and foreign staples has been cut off whenever shippers have attempted to advance prices proportionately to the rise in Upland spots and futures. Current quotations of Egyptian futures and prompt shipments reflect the actual situation in the extra staple market much more faithfully than do quotations of domestic staples, for the latter are purely nominal.

Egyptian futures and prompt shipments are up only fractionally for the week, despite the advance in American futures to new high records for the season, with a net advance of 100 points on the near months.

An unfortunate feature of the New England market for Egyptians is the increasing number of rejections of "machined" cotton. If, as is reported, the bulk of this cotton was bought "on type," it is unlikely that the mills will be successful in enforcing the rejections, but it is safe to say that they will never be caught in this way again. Excepting for an abnormal percentage of "dead" this machined cotton looks equal to grade, but will not give the "break".

Average prices for strict middling hard western cotton for prompt shipment are as follows:

1 1/16 inch 32	to 33c.
1 1/16 to 1⅛ inch.....32½	to 33½c.
1⅛ inch 33	to 34c.
1 3/16 inch 34	to 35c.
1¼ inch 37	to 39c.

Egyptian Prices and Statistics

John Malloch & Co., Boston, quote Egyptian cotton for prompt shipment, c.i.f. Boston, as follows: medium Sakelarides, 37⅜c., up ½c., from Jan. 17; medium Uppers, 34c., up ¾c. They report closing prices Jan. 24 on the Alexandria exchange as follows: March (Sak.), $34.40, up 28 points from Jan. 17; February (Uppers), $30.20, up 90 points.

Calder & Richmond, Boston, give the following quotations on Pima cotton under date of Jan. 17: No. 1, 38c.; No. 2, 37c.; No. 3, nominal.

New Egyptian Account

The Hazard Cotton Company, Providence and Boston, has been appointed sole agent in this country for the British-Egyptian Cotton Co., Ltd., Alexandria, Egypt. The latter company was established in 1920 with a capital of 100,000 pounds sterling, by gentlemen associated with Alexander Eccles & Co., the well known Liverpool, England, cotton merchants. C. B. Rawcliffe, who had represented the Eccles firm in Egypt for many years, was made managing director, and Charles Ross, formerly with Carver Brothers, became buyer for the new firm. Details of the transfer were arranged by Mr. Rawcliffe, who has been in this country for several weeks and who sailed from New York on his return trip on Thursday of last week.

Standard-Coosa-Thatcher Co.

CHATTANOOGA, TENN.

Spinners
and
Mercerizers
of
Fine Combed Yarns

Bleachers—Gassers

A quantity production of a High Grade Yarn of uniform quality consistently maintained

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Philadelphia, Pa.

Successors to
R.GREENWOOD & BAULT

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DYERS—BLEACHERS
OF
Cotton Warps and Skein Yarn

Indanthrene Colors a Specialty

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CONES TUBES WARPS SKEINS

Office:
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ASHWORTH-ODELL WORSTED CO.
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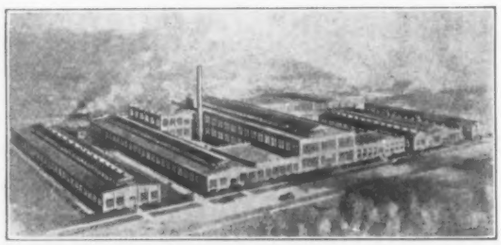


Compound Mixtures in Worsted Yarn for Men's Wear

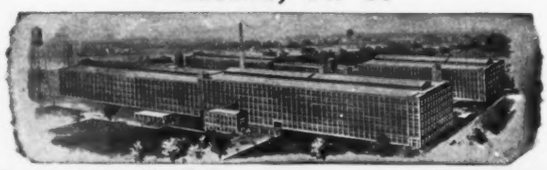
PUNCH & PREDMORE
Selling Agents
185 Summer St., Boston, Mass.

Chautauqua Worsted Mills
Jamestown, N. Y.
Manufacturers of WORSTED YARNS
(Bradford System)
FOR WEAVING AND KNITTING
White, Colors, Oxfords, Heather and Fancy Mixes

New York Agency: Metropolitan Bldg.

GRUNDY & CO., INC.
108 S. Front Street, Phila.
Tops and Worsted Yarns
FOR
Men's Wear, Dress Goods and Knitting
Trade both in Grey and Mixtures

Passaic Worsted Spinning Co.
Passaic, N. J.



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THOS. WOLSTENHOLME SONS & CO., Inc.
Frankford Ave. & Westmoreland St. Philadelphia, Pa. P. O. Station "E"

UNDERWEAR
HOSIERY
SWEATER
WEAVING
YARNS
COLORS
OXFORDS
AND
FANCY MIXES

French and English Spun Worsted
French Spun Worsted Merino

F. A. STRAUS & CO., Inc.
451-453 Fourth Ave., NEW YORK CITY
SPINNERS OF
Worsted Yarns for Weaving and Knitting
Mills, Trenton, N. J.
Thrown and Artificial Silks

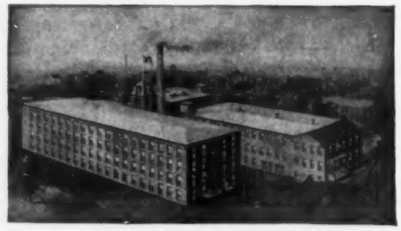
D. GOFF & SONS, Inc.
Pawtucket, R. I.

Worsted Yarns
Bradford System

MOHAIR WORSTED WOOLEN
MERINO AND SPUN SILK
YARNS
OF EVERY DESCRIPTION
PERCY A. LEGGE, PHILADELPHIA BOSTON

Incorporated 1904

FALLS YARN MILLS
WOONSOCKET R. I.



FINE WOOLEN AND MERINO YARNS

Philadelphia Representative H. R. SHIRLEY 242 Chestnut St.

THE YEWDALL & JONES CO.
Manufacturers of WORSTED YARNS
In the gray and in all colors: also fancy mixtures and double and twist
PHILADELPHIA, PA.

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WORSTED SPINNERS
KENSINGTON PHILADELPHIA

WORSTED YARN MARKETS

Worsted Yarn Trade Watches Goods Opening

Market in the Making—Spinners Well Engaged—Market on Strong Foundation

The attention of the entire worsted trade practically has been focussed upon the openings this week of certain lines for the next heavy-weight season. As many predicted, the advances named were more moderate than might have been anticipated, based upon present replacement costs, which on their face would have indicated higher prices. Nevertheless, the policy adopted is regarded as good business psychology in that it affords business a good opportunity to get started without the severe handicap of an extreme advance, thus making it possible for lines to be withdrawn and re-offered at advanced figures as the original supplies of raw materials at lower costs are used up.

There has been little chance for any new developments in yarns at present, though the situation has many peculiar aspects. Back of it all stands the raw wool market, with its exceedingly strong position, which is world-wide, with recent further advances in fine wools, so that fine Australians have recently been purchased at landed cost of $1.55 Boston. Furthermore, the average worsted spinner has been selling yarns in good volume, beginning last October, so that today most of them are well sold up as far as June, although it is admitted this business has been booked at a price far below replacement costs. For that reason spinners are placed in a more independent position as regards further orders.

Scattered Buying Noted

Buying for the present is reported as scattered. In New England, those who have recently visited that territory state many manufacturers apparently have sufficient yarns on hand to cover immediate requirements, and until there has been more movement of goods, they will not come into the market for more. They show an interest in prices named and admit they are correctly figured, as with few exceptions yarn prices now being quoted are based upon replacement values in wools. The increased firmness of the wool market, coupled with increasing labor costs are not stimulating spinners to encourage contracts running too far ahead. Sales are noted here and there, but, as a rule, prices prevailing are below top quotations, as, for example, with 2-40s, quoted up to $2.35 and $2.40 offerings are noted around $2.25. Interest is reported from men's wear mills in 2-32s quarter-blood and three-eighths, as well as 2-36s three-eighths, 2-40s in half-blood and 2-50s fine, and single yarns in 20s to 24s. Vigoureux and fancy mixtures are also commanding attention. In dress goods lines the interest is largely centered still in 2-40s and 2-50s, with single yarns in 30s to 40s warp and filling, while voile and crepe yarns are also reported receiving attention.

Knitting Yarns Also Waiting

Knitting yarns are not showing any marked development as yet, following the recent offerings of various lines. In fact, it is said by several factors that business is not coming along as rapidly as expected, with resistance reported to the higher prices. Cheap knitting yarns are said to be showing more activity than the others with 2-20s in low South Americans, imitating mohair effects, sold at $1.25. Interest here is for the usual numbers in quarter-blood, as well as common and low quarter. In knitted fabrics there is not much activity noted, the inquiry here being for single 25s and 27s half-blood French spun at around $2.25. Hosiery yarns have yet to reveal any general development of interest, although these yarns are said to receive some attention in single yarns for fancy twists.

Yarns Unaffected

Lower Opening in Goods Had Little Influence on Spinners

BOSTON.—The worsted yarn market was not greatly affected by the unexpectedly low opening of the American Woolen Co. It made some weavers rather blue, it is said. General impression among spinners and topmakers was that it would be very difficult for independents to buy at current levels and compete with the

QUOTATIONS

(Corrected at close of business Wednesday)
All Prices Nominal

BRADFORD SYSTEM

1-12s to 2-16s, low common	1 00	—1 05
1-20s to 2-24s, low ¼	1 20	—1 25
1-20s to 2-26s, ¼ blood	1 45	—1 55
1-16s to 2-30s, ¼ blood	1 55	—1 65
1-32s to 2-32s, ¼ blood, S. A.	1 45	—1 55
1-32s ¼ blood	1 60	—1 70
1-20s ⅜ blood	1 55	—1 65
1-24s ⅜ blood	1 60	—1 70
1-32s ⅜ blood	1 70	—1 80
1-36s ⅜ blood	1 80	—1 90
1-32s ½ blood	2 15	—2 25
1-36s ½ blood	2 20	—2 30
1-40s ½ blood	2 25	—2 35
1-50s high ½ blood	2 60	—2 70
1-50s fine	2 75	—2 85
1-60s fine	3 10	—3 20
1-40s Australian	Nominal	
1-50s Australian	Nominal	
1-60s Australian	Nominal	
1-70s Australian	Nominal	

FRENCH SYSTEM

1-20s quarter	1 50	—1 60
1-20s high quarter	1 70	—1 80
1-30s ⅜ blood	1 90	—2 05
1-30s ⅜ blood	2 00	—2 10
1-30s ½ blood	2 25	—2 30
1-40s ½ blood	2 30	—2 40
1-50s	2 60	—2 75
1-40s Australian	Nominal	
1-50s Australian	Nominal	
1-60s fine Australian	Nominal	

KNITTING YARNS IN OIL. BRADFORD SYSTEM

1-8s to 2-10s, ¼ blood	1 20	—1 30
1-11s to 2-20s, ¼ blood	1 40	—1 50
1-16s to 2-30s, ¼ blood	1 50	—1 65
1-16s to 2-20s, ⅜ blood	1 55	—1 65
1-20s to 2-30s, ⅜ blood	1 75	—1 85
1-20s to 2-30s, ½ blood	2 20	—2 25

FRENCH SPUN MERINO, WHITE

1-20s 50-50	1 60	—1 70
1-20s 60-40	1 67½	—1 77½
1-20s 70-30	1 77½	—1 87½
1-20s 80-20	1 82½	—1 92½

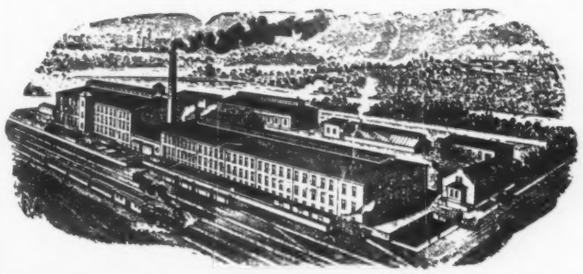
Pocasset Worsted Company, Inc.

Worsted Yarns

OFFICE

10 High St. Cor. Summer Boston

MERION WORSTED MILLS



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Fine French-Spun Worsted and Worsted Merino Yarns

WHITE NATURAL AND FANCY MIXES IN SINGLE AND PLY FOR KNITTING AND WEAVING

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WORSTED YARNS

for Knitting and Weaving Trade

BRIDGEPORT, MONT. CO., PENNA.

WORSTED AND MERINO

JD FRENCH SPUN YARNS

FOR KNITTING AND WEAVING

Manufactured by

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WOONSOCKET, R.I.

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Fast Dye Organzines for Woolen Manufacturers a Specialty

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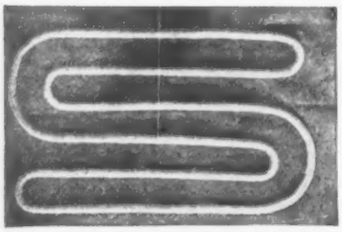

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Less Waste
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Longer Life
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in the perfection of your goods
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ART SILK
TOPS and NOILS

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O. J. CARON
166 W. JACKSON BLVD.
CHICAGO, ILL.
KNITTING YARNS
Worsted and Worsted Merino
Gray Bleached Colors Heathers

NUMBER 1 BELT STOCK

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Made Exclusively from Deford Tanned Leather

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Recognized as the Leading Manufacturers of
BRAIDS, EDGINGS, TUBING
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THROWN SILK, Tram, Organzine, Artificial Silk

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Tinsel Thread
Best Quality Harness Twine
YARNS
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"LION BRAND"
NARROW WOVEN FABRICS
HOFFMAN CORR MFG. CO.

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381 Fourth Ave. New York
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Thrown Silk Yarns
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QUALITY WORSTED YARNS SINCE 1

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EGYPTIAN COTTON
Atkinson, Haserick & Company
BOSTON, MASS. BRADFORD, ENG.
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YARNS
FITCHBURG, MASS.

SILK MILL SUPPLIES of Every Kind and Description
Also Power Transmission Supplies for General Mill Use
I. A. HALL & CO.
PATERSON, N. J.
Allentown Reed, Harness and Mill Supply Co., Allentown, Pa.

Rockwell Woolen Co.
Leominster, Mass.
Manufacturers of
WOOLEN and MERINO YARNS
FOR WEAVING and KNITTING
Heather a Specialty Mixtures and Decoration Yarn

Worsted Yarn Markets—Continued

big company on prices shown. There is, however, the moral certainty that prices generally for worsted fabrics will not stay upon the low level on which they were opened.

It is really too soon to estimate the full results of the American opening on the worsted yarn market. As a matter of fact, some prominent mills in this vicinity advanced their prices all around and there is certainly no tendency anywhere observable either for topmakers or spinners to lower prices. In the case of yarns, however, it is possible to obtain some spot lots 5c. to 10c. per pound below the market and outside the standard tops made by reputable concerns lower prices are occasionally offered in medium and fine tops. The main fact in the situation, however, is not the lower opening for fabrics, but a strong wool market, shortage of supplies, and higher prices for most grades of wool in the foreign markets.

As to quotations, 2-32s quarter blood are offered $1.65-70; 2-40s low half blood, $2.20; 2-40s straight half blood, $2.35-40; 2-50s, fine, Bradford, $1.65-70, and French-spun, $2.90-93.

Importing apparently is at a minimum, the Bradford market advancing rapidly upon the average three pence during the last week. Yarns of all classes are very strong and although the continental market is very dull, this is not affecting strongly bullish sentiment in Bradford. Bradford 64s tops have advanced to 64 pence, the highest price for many weeks.

Tops Quite Busy

Low Grade Crossbred Tops and Noils Advance During the Week

The top market had another good week, better perhaps than would have occurred if the results of the American Woolen opening had been fully known. With an advance of 12 per cent. only on worsted staples as compared with last year, spinners possibly would have been less ready to pay current top quotations. The raw wool market nevertheless must remain the dominant feature in the situation according to top-making sentiment, and the lower opening is quite in a line with previous seasons and may be followed in the not far distant future by higher prices.

Business quite recently has been in fine and half blood high three-eighths and high quarter blood. Quotations have not been advanced for these commodities. There has also been a good demand for 46s and quotations have advanced 2c. per pound, the ruling level now being 90-92c. Tops grading 40s are also firmer, advancing 1c. a pound this week, quotations now standing at 71-73c.

The top market has been much busier. A good buying movement has appeared, mills placing substantial orders and dealers showing an increase in activity. One house sold 2,000 bags of mixed qualities during the week. Actual sales of fine noils have been made at 86-88c. Fine noils are firmer; crossbred 40s and 36s have both advanced during the week, 40s from an average price of 52c. to 56c., and 36s from 43 to 50c.

Current Quotations

	Tops.	Noils.
Fine territory	$1.77- .80	90-93c
Half blood	1.65- .66	83-85c
High three-eighths blood.	1.40- .45	75-80c
Aver. three-eighths blood.	1.35- .37	70-75c
Low three-eighths blood..	1.15- .17	66-70c
High quarter blood.....	1.07- .10	65-68c
46s	.90- .92	63-65c
44s	.75- .77	55-60c
40s	.71- .73	55-58c
36s	.. .70	50-52c

Spun Silk Firm

Demand Continues in Heavy Strain —Few Concessions in Prices

Trading in spun silk continues in the active vein which has emphasized it for a number of weeks, producers being most active. Orders are for immediate and future deliveries. Prices are firm, with very few concessions being made.

Prices are as follows:

60-2	4.50	20-2	4.40
50-2	5.20	10-2	4.20
40-2	5.10	60-1	4.60
30-2	4.70		

Art Silk Active

Demand Continues, Buyers Making Attempts to Secure Deliveries

Art silk buyers continue active in their quest for deliveries, most producers being well sold up, thus making deliveries more difficult to obtain. Premiums have been offered in many quarters, buyers hoping thus to secure prompt deliveries. Knitters in various fields continue active.

Prices are as follows:

300 DENIER

Grade A—Bleached	2.65
Grade B—Bleached	2.45
Grade C—Bleached	2.35

150 DENIER

Grade A—Bleached	2.80
Grade B—Bleached	2.60
Grade C—Bleached	2.40

Business News

Change in Name, but Not in Personnel

Slaughter-McCabe Co., Inc., with offices in the News Buildings, Greenville, S. C., has succeeded G. G. Slaughter Machinery Co. There has been no change in the personnel of this well known firm of manufacturers' agents handling textile machinery and power plant equipment. The officers of the Slaughter-McCabe Co. are: G. G. Slaughter, president; Jas. McCabe, vice-president and treasurer, and J. W. Slaughter, secretary.

New Southern Agent

The J. H. Williams Co., of Millbury, Mass., manufacturers of heddles, heddle frames and shuttles, have made a connection with George F. Bahan, of Charlotte, N. C., to act as their southern agent. With the reputation already established of the Williams product and the large acquaintance which Mr. Bahan enjoys in the South, results are bound to follow.

Artificial Silk and Cotton Yarns—

The experience of a pioneer in the practical processing and dyeing of artificial silk and cotton yarns, coupled with the accumulated knowledge of a personnel appraised high in the silk world—these are at your service in your transactions with us.

Permit us to give you the benefit of artificial silk and cotton yarn knowledge paid for by experience.

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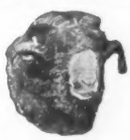
Woolen and Merino Yarns

WEAVING  KNITTING

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FRANKLIN YARN MILLS
Established 1856
Woolen and Merino Yarns Specialists on Unusual Yarns
J. RANDALL & BRO.
Incorporated
GERMANTOWN, PHILADELPHIA

AMTEX TRADE MARK REGISTERED
Spinning and Twisting Tapes and Double Loop Bands
AMERICAN TEXTILE BANDING CO., Inc., Germantown, Philadelphia

Philadelphia Wool Scouring and Carbonizing Co.
WOOL
Scoured and Carbonized
Freight Address: Coral St. Sta., P. & R. R.R. Somerset and Trenton Ave., Phila., Pa.

Farnsworth, Stevenson & Co.
Established 1848
WOOL MERCHANTS
Wools and Noils of all descriptions bought and sold on commission
Consignments solicited
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WOOL MERCHANTS — Summer St., BOSTON
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Chicago Wool Company
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WOOL MARKETS

Wool Market Shows Advancing Tendency

Temporary Depression Over Lower Goods Opening Displaced by Growing Confidence

BOSTON.—There is little new in the Boston wool market this week. The lower opening of the American Woolen curbed slightly excessive bullish tendencies, but the foundations upon which the high market is based are altogether too substantial to be affected by an event of this description. The market is not exactly active, particularly in domestic wools, the quantity available being so small. Foreign markets continue to rise.

The American Woolen opening, based upon a number of staple worsteds, showed an advance compared with the previous heavyweight season of approximately 12 per cent. Few on Summer Street expected the big company to open up its fall lines on a level determined by replacement costs. It was generally believed that the American had relatively large stocks of wool taken in much below present Summer Street level, and that also during the year they had been consistent and steady buyers both at home and abroad of noils, mill wastes and rags.

The Boston Wool Trade inventory, as of Dec. 31, 1922, showed a total increase of unsold wool as compared with a year ago of 37 per cent, the increase being entirely due to large stocks of foreign wools held in bond. The report is not nearly so enlightening as it might be. Out of a total of 86,000,000 pounds, 46,477,000 pounds are listed as "foreign in bond"; that is, more than half the inventory is given without any detail whatsoever as to quality, whether clothing, combing, or scoured, how many tops or how many noils.

The small quantity of domestic wool held, some 22,000,000 pounds, has been further increased since the first of the year by the arrival from the west of approximately 5,000,000 pounds. As against this, during the last couple of weeks there have been some extensive sales of territory wool, one house alone claiming a sale of 2,000,000 pounds. This cleaned-out condition in domestic wools is almost sure to force early competitive contracting for next season's clip. Fleece wools are very strong. Stocks held, 3,573,625 pounds, are very small and Ohio fleeces are lifting the market for this type of wool to a higher level. It is not known how much, if any, wool is held by Ohio pools, but in the year 1921 the Ohio sheep and wool-growing association marketed no less than 5,798,000 pounds, the next largest pool being that in Michigan, which sold 2,586,000 pounds.

Receipts and Shipments

Receipts of wool in pounds for the week up to Wednesday are as follows:

	1923	1922
Domestic	2,613,500	4,079,800
Foreign	7,859,300	2,065,800
Total	10,472,800	6,145,600

Receipts of wool in pounds since

LONDON WOOL SALES

London, Eng., Jan. 24 (*By Radio to* TEXTILE WORLD).—London sales opened on Tuesday with record attendance. Keen competition from all quarters except Germany. Some merinos withdrawn owing to high limits, but all crossbreds sold. Good merinos 5 to 7½ per cent. dearer than at close of December sales; inferior merinos par to 5 per cent. dearer; fine crossbreds 5 per cent. dearer; medium crossbreds 10 to 15 per cent. dearer; coarse crossbreds 15 per cent. dearer. This more than confirms advance in primary markets and at Hull and Liverpool since beginning of year.

QUOTATIONS

(Corrected at Close of Business Wednesday)

OHIO, PENNSYLVANIA AND WEST VIRGINIA

Fine cloth'g..52—54	¾ blood.....54—55
Fine del.....57—58	¼ blood.....52—53
½ blood.....56—57	

MICHIGAN AND NEW YORK

Fine del.....54—55	⅛ blood ....48—49
Fine cloth'g..46—47	¾ to ⅝ bl'd..44—47

INDIANA, MISSOURI AND SIMILAR

⅛ blood.....47—48	¼ blood.....44—46
⅜ blood.....45—46	Common .....36—37

CALIFORNIA (Scoured basis)

Sp'g northern & 12mo.1.25—1.30	S'th, 6 and 8mo. .....
Sp. middle	Fall free...1.00—1.05
counties ..1.15—1.20	Fall defects..90—95
S'th 12mo..95—1.00	Carbonized .95—1.05

TEXAS (Scoured basis)

Fn. 12mo..1.30—1.35	Fine fall..1.10—1.15
Fn. 8mo..1.15—1.20	

PULLED—EASTERN

Scoured		Scoured	
Fine	1.25—1.30	Lambs' bs.	.95—1.00
A super.	1.05—1.10	C'bgs fin.	1.00—1.05
B super.	.95—1.00	Medium	.85—90
C super.	.75—78	Coarse	.65—70

MONTANA, IDAHO AND WYOMING (Scoured basis)

Staple fin.1.30—1.35	Fine cloth.1.20—1.25
Do., ¼ bl'd1.20—1.25	Fin. m'd'm1.15—1.20

UTAH (Scoured basis)

Fine .....1.20—1.25	Fine med'm.95 —1.00

COLORADO AND NEW MEXICO (Scoured basis)

Fine .....1.05—1.10	½ blood.....95—1.00

NEVADA (Scoured basis)

Fine med..1.05—1.10	Fine cl'th'g1.00—1.05

MOHAIR

Domestic		Foreign (In bond)	
Best combing.	70—75	Turkey	.32—37
Best carding.	.65—70	Cape	.32—35

FOREIGN CLOTHING AND COMBING (In Bond)

Clean Basis		In Grease	
Cape:		Montevideo	
Combing, choice.	1.15—1.20	56/58s	.51—54
Combing, good...	1.05—1.10	56s	.47—48
Cothing, choice....	.90—95	50s	.42—44
good.....	.80—85	Buenos Aires	
Australia:		46s	.26—29
Fine ...	1.15—1.23	40s	.20—21
64s	1.10—1.15		
56-58s	.87—90		

FOREIGN CARPET (Grease basis)

Aleppo:		Khorassan:	
Washed	.30—33	1st clip.....	.28—30
Whd. col.....	—..	2nd clip....	.28—30
Angora	.15—16	Mongolian:	
Awassi	.18—23	Urga	.22—25
Karadi	.18—23	Manchu'n ..	.18—20
Bokhara:		Scotch Black	
White	—..	Face	.14—16
Colors	—..	Camel's hair (Russian) ...	—..
China:		Servian skin	
Combing ...	.20—21	wool	.26—29
No. 1 Wld ball	.32—33	East India:	
Wld. open ball	.21—22	Kandahah .	.30—34
Willowed ..	.15—20	Vickan'r ...	.35—45
Szechuen assortm't.	.16—17	Joria	.45—52
Cordova	.15—16	Gray	.30—34
Denskul	—..		

Wool Markets—Continued

Jan. 1, 1923, compared with the same period in 1922, are as follows:

	1923.	1922.
Domestic	6,229,500	10,427,500
Foreign	24,502,100	6,937,300
Total	30,731,600	17,564,800

Shipments of wool for the week ending and including Jan. 24 follow:

Boston & Maine	468,000
Mystic Wharf	.....
By sea	.....
Grand Junction	.....
Boston & Albany	594,000
New Haven	1,007,000
Total	2,069,000
Shipments during previous week	2,441,000
Shipments same week last year	2,298,000
Shipments thus far for 1923	7,821,000
Shipments same period 1922	6,925,000

Market in Good Shape

Wools in Limited Supply Find Improved Interest

PHILADEAPHIA.—There is some improvement in the amount of interest in wools. At least, there is more activity to be found since the opening of the year. The interest is broadly distributed with quarter and three-eighths receiving the bulk of the attention. Dealers have very few desirable domestic wools to offer now, so that prices are firmly maintained at recent levels. At that dealers state the domestic markets offer wools at lower prices than are named in markets abroad. Here prices have stiffened considerably, so that fine Australians have been reported purchased at a landed cost here of $1.55.

Scoured values are about where they were, with quarter-bloods at 90 to 95c.; three-eighths at $1.05; half-blood, $1.20 to $1.25 and fine at $1.35 up.

No Big Sales

Sales are not very large and include almost every grade. Among them are noted 50,000 lbs. of bright quarter-blood at 52c.; 50,000 lbs. semi-bright on prevailing market values; 50,000 lbs. Santa Cruz 56s, at 50c.; 50,000 lbs. of three-eighths fleeces, 53c. to 54c.; 10,000 lbs. of Michigan delaine, 54½c.; 20,000 lbs. original Texas, 47c.; 10,000 lbs. of three-eighths territory, 46½c.; domestic braid wool, 41c.; 20,000 lbs. of Punta 50s at 36c. in bond.

Scoured Wools Broad Demand

Scoured and pulled wools are showing a continued demand which seems to be very widely distributed, with both manufacturers and dealers operating. Prices are holding firmly, and on domestic pulled wools, it is difficult to operate, as pullers want around $1.10 for average wools. Manufacturers are said to be looking for lower priced wools to be used as cheapeners in making up their stocks. Colonial scoured fine Australian sold at $1.25, containing a little grease; scoured Montevideo, not especially choice, sold at 98c. to $1.00.

Noils Also Active

Noils also show this same tendency, with manufacturers picking up small lots here and there where a good opportunity is offered. High quarter-bloods are attracting attention, with local offerings at 58c. to 60c.; a fine foreign noil sold at 80c. Indicating the broad range of values, one house said they had offers of 58½c. to 66c. for their various medium noils in 48s to 56s, with their average lots held at 63c. to 65c., according to condition.

Wools in West Strong

Bid of 40c for a 1923 Wyoming Clip Made and Refused

CHICAGO.—With 40c. reported bid for a 1923 Wyoming clip and the bid refused, and big packer sheep pelts selling at advances of 25c. per pelt, this market shows strength. With asking prices and some sales as basis 48c. is noted for bright half blood and fine; another lot of somewhat heavier shrinkage is held at 46c. Braid wools are held at 34c. and 36c., while for other off-grade fleeces 32c. to 40c. are the asking prices.

A carload of western scoured A was reported sold at $1.04. A sample was noted of a thousand-bag lot of eastern scoured B wool at 98c. For certain packer B wools about $1.00 seems to be the basis of trading. From KYW, Chicago, each night the wool markets are being broadcasted.

Raw Silk Quiet

Hand-to-Mouth Business—Activity Followed by Decline

The local raw silk market is quiet, with the prices unchanged, though a trifle easier in some directions. Business is mostly of a hand-to-mouth character and the fact that many of the larger mills are fairly well covered for a month or two ahead makes buying spotty. After a short spurt of activity at the close of last week the market generally has settled back to a waiting attitude, but the mills are watching developments on the primary markets closely and holders as a rule are showing confidence. Prices on Thursday were as follows:

Filature Kansai Double Extra 13/15	8.70
Filature Kansai Extra 13/15	8.55
Filature Best No. 1 Extra 13/15	8.50
Filature Best No. 1	8.45
Filature Kansai No. 1 13/15	8.40
Filature Sinshui No. 1 13/15	8.35
Four months' basis.	
Canton, 14/16, new style	8.00
Canton, 20/22, new style	7.60
ITALIAN	
Extra Classical	8.50
Best Classical	8.25

Penna. Ktg. Mills Receiver

In response to a bill in equity filed in the Philadelphia Court of Common Pleas on behalf of the Hulton Dyeing Co., Inc., Philadelphia, Charles V. Thackara, president of the Chesapeake Weaving Mills, Inc., Havre de Grace, Md., was appointed temporary receiver of the Pennsylvania Knitting Mills, manufacturers of sweaters, etc., Sixteenth and Callowhill Streets, Philadelphia. Morris L. Bayard, president of the company, stated that he had been authorized by the directors to join the application for receivers. The bill in equity states that the assets of the company amount to a total of $1,051,705, while the liabilities aggregate $869,175.

Century

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Ratings 1/3 to 5 H.P.

The rotor construction consists of high conductivity copper bars located in closed slots in the laminations. These bars are brazed into formed U shape cross section rolled copper end rings, with a material that will not melt under the most severe operating conditions.

Temperature rise not more than 40° C.

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THE JOHNSON FRICTION CLUTCH.

Complies With All Textile Insurance Regulations

Its exterior is perfectly smooth without protruding parts.

No clatter—No Bang.

All working parts enclosed against dirt and dust.

Single Clutch Exterior

A Few Machines Used on:

Butter Churns	Lathes
Bottle Fillers	Screw Machines
Bottle Cappers	Grinders
Soap Wrapping	Drill Presses
Knitting	Boring Mills
Dye Jiggers	Millers
Bottle Labelers	Tobacco Machinery
Tire Wrapping	Cigarette "

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WOOLEN RAGS
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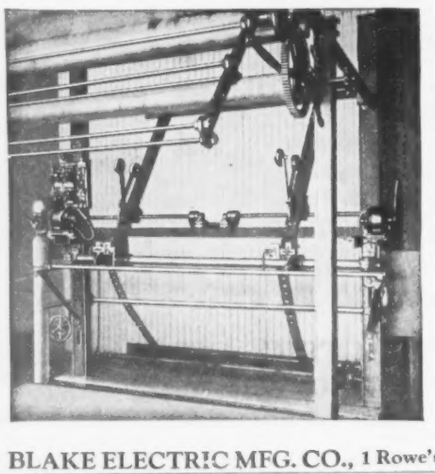

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Reduces labor costs.

Handles cloth of any kind, weight or width.

Absolutely reliable.

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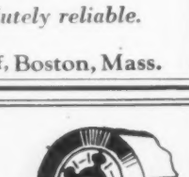
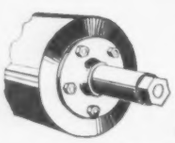
REGISTERED

WOOD ROLLS





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RAGS, SUBSTITUTES AND WASTE

Business Subnormal in Recovered Fibres

Industry Usually Follows the Fortune of Woolens, But Has Encountered Adverse Factors

The recovered wool market is steady but little new business is coming in. Contrary to general expectations some manufacturers had a fairly good year in 1922 and for the year now current it is expected that business will not merely be larger but better distributed. Over a series of years the recovered wool industry has been declining in relation to the quantity of virgin wool used in manufacturing. In 1904 percentage of recovered wools used as related to total wool on clean basis was 27.4 per cent.; in 1919 according to Census reports 15.4 only of the wool consumption on a clean basis was recovered fibre.

This industry has to recognize the fact that for a number of years the manufacturing trend has been away from woolens and in the direction of worsteds. Some consider this switch from woolens to worsteds one of the social changes incident to developing civilization. It requires much more skill as well as larger machinery equipment to manufacture worsteds than to produce woolens but the woolen industry representing fulled fabrics can never fail to be an important branch of wool manufacturing, second only to worsteds.

Re-worked wools ought to encounter much better business later on. The prices of these fibres and their valuable manufacturing qualities together afford considerable incentive to woolen manufacturers to utilize them to a larger degree. Manufacturers of overcoatings have plenty of orders and are consuming noils and wastes in large quantities.

The rag market has to wait for activity in recovered wools. Stocks of materials both graded and ungraded, especially the latter, are large enough to exert a somewhat depressing influence in absence of active buying on the part of woolen mills and fibre manufacturers. The situation, however, may be considered fundamentally sound. These materials have had no rise comparable with that of wools, their by-products and wastes, and this is the strong feature of the situation.

Difficult Waste Market

Wastes of all descriptions in white are holding strong. The market is becoming a difficult proposition for the smaller graders to operate in, and as one of them said it is almost "shot to pieces." Mills have been able to secure high prices for their output of wastes and smaller dealers are to some extent out of the running. They may probably find their activities confined to selecting the wastes they can sell to advantage from the larger houses who have secured the mill contracts. The market unquestionably is at a high level and yet underneath the market is a remarkably strong situation in wools.

High prices for threads feature the market. Choice ungarnetted have sold as high as $1.00 per pound. These materials are following the up-

QUOTATIONS

(Corrected at close of business Wednesday)

WOOL WASTE

Lap:	
Fine white	1 25 —1 35
Fine colored	83 — 92
Medium colored	50 — 65
Ring:	
Fine Australian	1 23 —1 28
Fine domestic	1 12 —1 18
Thread:	
Fine Australian	90 — 95
Fine domestic	85 — 90
Medium domestic	60 — 65
Quarter blood	50 — 55
Medium colored	25 — 30
Card:	
Fine Australian	60 — 65
Fine domestic	55 — 60
Medium domestic	40 — 45
Fine colored	20 — 25
Medium colored	10 — 13

REWORKED WOOL OR FIBRE

Prices generally nominal. Cents per lb.

Serges—	
Blue	18—20
Brown	24—25
Green	25—26
Red	20—21
Black	18—20
Knits—	
White	50—53
Red	28—30
Brown	30—31
Merinos—	
Fine light	26—27
Fine dark	18—21
Coarse light	20—21
Worsted Skirted—	
Light	18—19
Blue	18—19
Dark	13—14
Brown	19—20

NEW WOOLEN CLIPS

Fine clips	9 — 11
Ordinary clothing clips	5 — 6

MEN'S WEAR CLIPS

Worsteds—	
Dark	14 — 15
Light	18 — 19
Black and white	24 — 25
Brown	26 — 27
Blue	23 — 24
Black	24 — 25

FLANNELS

Blue	10 — 11
Black	11 — 12
Green	11 — 12
Light	14 — 15
Tan	18 — 20
Scarlet	15 — 17

WOMEN'S WEAR CLIPS

Serges—	
White	30 — 33
Blue	17 — 18
Black	19 — 20
Brown	23 — 24
Green	23 — 24
Light	18 — 20
Tan	23 — 24

OLD WOOLEN RAGS

Merinos—	
Coarse light	7½— 8
Fine light	13 — 15
Coarse dark	3½— 4
Fine dark	7 — 8
Serges—	
Light	13 — 14
Brown	12 — 13
Blue	6½— 7
Black	6½— 7
Red	11 — 13
Green	11 — 13
Knit—	
White	34 — 35
Blue mixed	9 — 10
Black	14 — 15
Red	16 — 17
Brown	13 — 14
Light gray	11 — 12
Hoods—	
Light	13 — 15
Silver gray knit	13 — 14

SKIRTED CLOTHS

Skirted worsteds—	
Light	8 — 9
Black	8½— 9
Blue	6 — 7
Dark	4 — 5
Brown	7 — 8

ENDLESS WOVEN

ENDLESS TILTON WOVEN REG. U. S. PAT. OFF.

CARD BANDS

No Slip, No Splice, No Stretch, No Hooks.

Combs Equipped with Tilton Bands are operated for months without adjustment.

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THE MORSE "ROCKER JOINT"
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Here are perfect 3-ply Veneer Packing Case Shooks. Their extreme lightness saves 20 to 30 lbs. in freight on every case shipped. They are stronger than inch-boards, burglar proof, waterproof and clean—no cracks for dirt to sift through.

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World's Largest Specialists in Narrow Fabric
Looms

Built to meet your individual requirements

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MEDART means EVERYTHING in Line Shafting Equipment
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Substitute Markets—Contd.

ward tendency in fine wool which is now selling at approximately $1.45 per pound. There is a considerable range of material in these so-called fine threads, some of which can be bought as low as 90c., the general market level being somewhere between 90 and 95c.

Additional new business is expected to flow into the market just as soon as the heavyweight season is fairly well along, and the general opinion is that so far as demand from weavers is concerned it will be along medium lines. The fine qualities will find an outlet among knitters, broadcloth manufacturers and others.

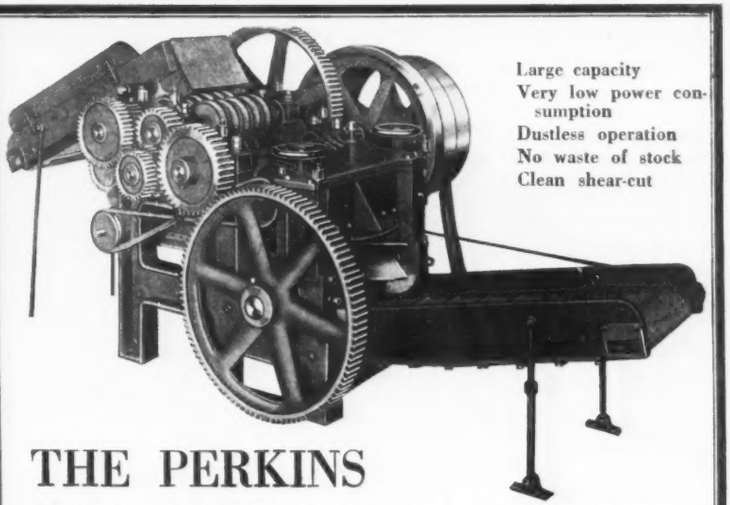
High Waste Market

Spinnable Stocks Strengthened by Higher Prices for Cotton

BOSTON.—The cotton waste market is strong with higher prices to consumers a moral certainty if cotton should stabilize itself around present levels. The lowest price for cotton in recent years was in June, 1921, when spot sold at 10.85c. At recent high the rise over this period is 175 per cent. Wastes of the spinnable character especially had an even larger advance. At that time combers could be purchased around 7c. whereas average asking prices are now 25c. or an advance over the period of approximately 260 per cent. In some quarters it is confidently affirmed that owing to the probability that the output of this material would be relatively small this year it is not unlikely that good combers will sell on a par with spot cotton.

From the exporting standpoint spinnable materials have reached a level so high as to check foreign buying. English manufacturers use these wastes for cheapening purposes and where the waste comes too close to the price of cotton the incentive for waste consumption is destroyed. On account of the high price paid for cotton British spinners have put high quotations on their strips which cannot at the present time be imported below our market. British exchange being below parity is in favor of the British exporter but against the British buyer of spinnable materials in this country.

The Federal Horticultural Board has handed down an additional important ruling regarding imported wastes. All restrictions are removed from distribution of fumigated wastes. All future shipments of wastes are released for unrestricted distribution after fumigation. All fumigated stocks held in stores or warehouses are also released for unrestricted distribution. Linter production is estimated at 550,000 bales for present season. The use of linters in paper-making and in the manufacture of artificial silk will tend to prevent this commodity entering into too strenuous competition with pickers and similar materials for the mattress and stuffing trades.



Large capacity
Very low power consumption
Dustless operation
No waste of stock
Clean shear-cut

THE PERKINS RAG AND STOCK CUTTER

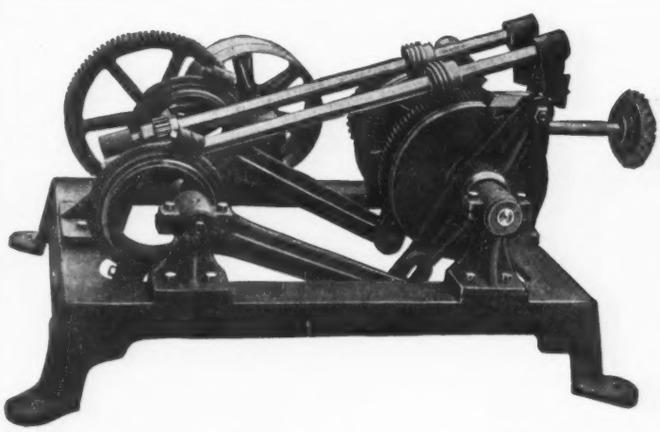
Especially adapted for Woolen Mills, Shoddy Mills, Carpet Mills and Wool Scouring Plants for reducing rag stock, reworking wool, cutting up raw wool and reducing extra long staple.

The Perkins Rag and Stock Cutter has a capacity of *100 pounds per minute* with a consumption of *approximately* 7½ *horsepower*. No other cutter can equal its efficiency based on output for power consumed.

Its rotary shear principle insures *clean and uniform cutting without useless waste* due to pounding and chopping.

B. F. PERKINS & SON, INC., Holyoke, Mass., U. S. A.

Sole Manufacturers of the Perkins Rag and Stock Cutter—The Perkins Cloth Piler—The Perkins Tensile Tester—The Jumbo Mullen Tester—Perkins Calender Rolls—Perkins Fans



Heine Automatic Shift

Especially designed for use in Woolen and Cotton Dye houses, in connection with Franklin Process. This machine shifts valves, gears or levers operated at stated intervals.

Dyeing is regulated with a precision otherwise impossible and the yarn cannot be ruined through streaky, uneven dyeing. It means one less step for the operative to perform, thus economizing on labor.

The Heine Automatic Shift operates at any desired interval of time and continues to work accurately as long as necessary. It has proved its merit in actual use.

Write us for full information.

Manufactured by

J. & W. Jolly, Inc.
Holyoke, Mass. Established 1881

NATIONAL U.S.A. DYES

A New Color For Navy Blues

National Fast Wool Violet 2 R

PRACTICALLY any shade of Navy Blue that requires level dyeing colors, can be obtained by a combination of NATIONAL FAST WOOL VIOLET 2 R and National Wool Green S, shaded with National Alphazurine 2 G, National Acid Fast Violet B G, or National Wool Orange 2 G Crystals.

National Fast Wool Violet 2 R is an acid violet of a full reddish shade. Its good fastness to alkali and light especially recommends its use for ladies' suitings.

Product samples or dyeings furnished by any branch office upon request.

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DYESTUFFS AND CHEMICALS

Chemical Market Quiet But Firm

Little Increase in Actual Business —Few Changes in Prices— Export Statistics

While the continued firmness of tone predicted for the industrial chemical market during 1923 is manifest at present, it must be admitted that the accompanying broadening of demand is not yet a permanent feature. A week ago there seemed to be increased activity, but during the week just closed there was noticeable a certain degree of slump.

There is, however, nothing in the situation which seems to cause any worriment to manufacturers or dealers. Many profess that they did not look for materially larger operations during the first month of the year and point out that all the fundamental conditions of the market are sound. At any rate, prices have certainly held their own and the entire list is firm with changes extremely few. Bleaching powder, caustic soda, and soda ash are still quoted at the levels which have held for some time and each seems in a strong position.

Chemical Exports

While complete foreign figures for the year 1922 are not available, the statistics on exports for the first eleven months give an index to the extent to which foreign markets in chemicals have been held during the year. Total exports of chemicals and allied products during the first eleven months of 1922 amounted to $97,215,547 as against $96,155,267 during the same period of the preceding year. Of this total, chemicals alone amounted to $47,668,535 during the eleven months ending November, 1922, as against $49,625,532 during the corresponding period of 1921.

Exports of caustic soda increased very materially, the total for the eleven months ending November, 1922, being 136,900,479 lbs. valued at $4,934,944, as against 40,460,561 lbs. valued at $1,627,334 during the corresponding period of 1921.

Belgians Seek S. A. Trade

WASHINGTON, D. C.—Consul Nasmith of Ghent, Belgium, reports to the Textile Division of the Department of Commerce that it has been ascertained on good authority that a group of 45 Belgian weavers of cotton goods located principally in the Ghent consular district, which comprises the Provinces of East and West Flanders, Belgium, has just decided upon establishing a selling agency for their goods at Buenos Aires, Argentine. One of the ablest manufacturers in the textile industry is at the head of this movement, which augurs well for its success.

Prices quoted below were corrected to close of business Wednesday on the New York market, and we believe them to be accurate, though largely nominal.

MISCELLANEOUS CHEMICALS			
Acetone	21	—	22
Alumina-Sulphate Com.	1½	—	1¾
Iron Free	2½	—	2¾
Alum. Ammonia, Lump	3½	—	3¾
Potash, Lump	3½	—	4½
Ammoniac, Sal. white, gr.	7	—	7½
Bleach, powder, per 100 lb.	1 90	—	2 40
Blue Stone	6	—	6¼
Chlorine Gas, Liquid	5¾	—	6¼
Copperas, ton	21 00	—25	00
Epsom Salts, Tech., 100 lb.	1 25	— 2	00
Formaldehyde, Spot	16	—	17
Glauber Salts, 100 lb.	1 00	— 1	35
Glycerine (C. P.) bbls. dms., extra	18¼	—	19
Cans	20	—	20½
Distilled, yellow, crude	17½	—	18
Lead—Brown acetate	10¾	—	11½
White (crystals)	12	—	12½
Lime, acetate, 100 lb.	3 50	—	..
Potassium—Bichromate	10	—	10¼
Chlorate crystals	7	—	9
Permanganate, tech.	16	—	18
Sodium acetate	6½	—	7
Bichromate	7¾	—	8
Bisulphite, 35 degs.	1¼	—	..
Nitrite	8½	—	10
Phosphate (Commercial)	3½	—	4
Prussiate, yellow	18	—	20
Sulphide, 60%, fused	4	—	4¼
30% crystals	2½	—	3
Tartar emetic, tech.	28	—	31
Cream of tartar, tech.	25	—	27
Tin—Crystals	33	—	..
Bichloride, 50 deg.	11	—	11½
Oxide, bbls.	45	—	47
Zinc dust	10	—	10½
ACIDS			
Acetic, 28% per 100 lb.	3 25	— 4	10
Citric crystals	50	—	51
Formic, 85%	15	—	18
Lactic, 22%	4	—	5½
Muriatic, 18 deg. per 100 lb. in tank cars	90	— 1	05
Nitric, 36 a 42 deg. per 100 lb	4 50	— 6	00
Oxalic	12	—	13½
Sulphuric, 66 deg. per ton, in tank cars	14 00	—16	00
Tartaric	31	—	32
ALKALIES			
Ammonia, aqua, 26 degs.	7	—	7½
Borax, refined, crystals and powdered, bbls.	5½	—	6
Potash, carbonate, 80-85%.	6	—	7
Caustic, 70-75%	6	—	7
Soda Ash, 58% light, per 100 lb.	1 75	— 2	25
Bicarbonate, per 100 lb.	1 75	— 2	10
Caustic, 76% per 100 lb.	3 75	— 3	90
Sal. 100 lb.	1 10	— 1	35
NATURAL DYES AND TANNINS			
Fustic: Solid	14	—	15
Liquid, 51 deg.	10	—	12
Gambier, liquid	8	—	10
Hematine, Crystals	14	—	20
Hypernic Ext.—51 deg., red shade	14	—	19
Indigo—Madras	85	—	90
Logwood chips	2½	—	3½
Extract, liquid, 51 deg.	9	—	10
Crystals	19	—	21
Osage Orange, Extract 51 degs.	7	—	7½
Osage Orange, crystals	17	—	18
Quercitron, Extract, 51 degs.	6¼	—	7½
Sumac, Ext. dom., ref., 51 degs.	6½	—	7½
Extract, stainless	8¼	—	9
Tannic acid, technical	45	—	50
DYESTUFF INTERMEDIATES			
Alpha Naphthol, ref	1 05	— 1	25
Crude	88	— 1	00
Alpha Naphthylamine	23	—	30
Aniline oil	16	—	17
Salt	24	—	25
Beta Naphthol, sublimed	55	—	56
Technical	25	—	26
Dimethylaniline	40	—	42
Metaphenylene Diamine	95	— 1	00
Paranitranaline	74	—	77
OILS AND SOAPS			
Castor Oil, No. 3	12	—	13
Lard oil, extra winter strained, 100 lb.	14 00	—	..
Extra No. 1, 100 lb.	13 00	—	..
No. 1 100 lb.	12 50	—	..
Olive oil, denatured, gal.	1 15	— 1	20
Foots	9	—	9½
Red oil, lb.	11	—	..
Turkey Red Oil, 50%	8	—	9
ADHESIVE AND SIZING MATERIALS			
Albumin, blood, domestic	45	—	55
Egg, technical	70	—	75
Dextrine—Potato	8	—	8½
Corn, carload lots, bags, 100 lb.	3 39	— 3	59
Do., bbls., 100 lb.	3 67	— 3	87
Gum Arabic, amber sorts.	15	—	16
Gum, British, carload lots, bags, 100 lb.	3 74	—	..
Do., bbls., 100 lb.	4 02	—	..
Sago, flour	3¾	—	4¼
Starch, corn, bags, carload, 100 lb.	2 72	— 2	83
Do., bbls.	3 00	— 3	10
Corn, thin boiling, bags, 100 lb.	3 47	— 3	62
Do., bbls.	3 75	— 3	96
Potato	5	—	6½
Rice	10	—	12
Wheat	6	—	6½
Tapioca flour	4	—	6
COAL TAR DYES			
Direct Colors—			
Black (H-acid)	33	—	45
Black, Columbia FF	80	— 1	00
Blue, 2 B	33	—	45
Blue, 3 B	50	—	75
Blue, sky, ordinary	95	— 1	30
Blue, sky, FF	1 50	— 2	00
Blue, Fast RL	1 90	—	..
Blue, Solamine	1 50	—	..
Benzo Azurine	90	— 1	15
Brown C	65	—	85
Brown M	1 20	— 1	40
Brown, Congo G	1 50	—	..
Brown, Congo R	1 00	—	..
Green B	90	— 1	10
Green G	90	— 1	10
Orange, Congo	80	—	..
Orange, Fast S	2 00	—	..
Red, Fast F	1 20	— 1	60
Red, Congo	60	—	90
Red, Benzo Purpurine 4B	50	— 1	00
Red, Benzo Purpurine 10B	50	—	..
Scarlet, 4 BA	1 50	—	..
Scarlet, 4 BS	2 50	—	..
Scarlet, 8 BS	2 15	—	..
Scarlet, Diamine B	1 65	—	..
Violet N	1 30	— 1	60
Yellow, Chloramine	1 00	— 2	00
Yellow, Chrysamine	90	— 1	25
Yellow, Chrysophenine	90	— 2	70
Yellow, Stilbene	90	— 1	25
Developing Colors—			
Black, B. H.	75	— 1	10
Black, Zambesi	..	—	..
Orange, Developed	2 50	—	..
Primuline	1 00	— 1	15
Scarlet, Developed A	2 50	—	..
Scarlet, Developed R	3 00	—	..
Diazo Bordeaux 7B	2 00	—	..
Sulphur Colors—			
Black	18	—	40
Blue, cadet	80	—	95
Blue, navy	60	—	90
Brown	25	—	60
Green	85	— 1	25
Green, olive	55	—	80
Yellow	70	— 1	00
Basic Colors—			
Auramine	1 50	— 2	50
Bismarck Brown	60	—	75
Chrysoidine	65	—	80
Fuchsine crystals	2 25	— 2	75
Malachite green	1 50	— 1	60
Methylene blue	1 50	— 2	00
Methyl violet	1 35	— 1	50
Rhodamine B, ex. cone.	7 90	— 8	50
Rhodamine 6G	7 50	— 9	00
Safranine	1 60	— 2	00
Victoria blue B	2 00	— 3	00
Acid Colors—			
Naphthol blue black	60	—	90
Naphthylamine black 4b.	50	—	75
Sulphon black A	1 10	—	..
Alizarine saphirol	3 50	— 4	50
Alkali Blue	3 50	— 4	00
Indigotine	1 75	— 2	50
Induline (water soluble)	75	—	85
Soluble Blue	2 75	— 3	50
Sulphocyanine	85	— 1	20
Sulphon Blue R	1 00	—	..
Patent Blue A	2 85	—	..
Resorcin brown	85	—	95
Guinea green	1 40	— 2	10
Wool green S	85	— 2	30
Orange II	33	—	36
Orange GG (crystals)	60	— 1	00
Acid fuchsine	75	— 2	00
Amaranth	50	— 1	30
Azo Bordeaux	75	— 1	00
Azo eosine G	1 25	— 2	25
Brilliant lanafuchsine	1 25	— 1	70
Brilliant scarlet	85	—	..
Crocein scarlet	1 10	— 1	35
Fast red A	60	—	70
Azo yellow	1 10	— 1	40
Fast Light Yellow 2G	2 00	—	..
Naphthol Yellow	1 35	— 1	40
Metanil Yellow	80	— 1	10
Tartrazine	80	— 1	00
Violet 10B	2 25	—	..
Violet 6RN	2 50	—	..
Victoria Violet	2 25	—	..
Formyl Violet	2 50	— 3	00
Chrome Colors—			
Alizarine (20% paste)	50	—	60
Alizarine Red S Powder	2 00	—	..
Alizarine Orange (20% paste)	50	—	60
Ailzarine Yellow R	45	—	75
Chrome Orange	90	— 1	10
Chrome Black A	80	—	..
Diamond Black F	1 00	— 1	50
Diamond Black P. V	1 00	— 1	50
Gallocyanine	2 00	— 4	00
Palatine Chrome Black	65	—	90
Anthracene Brown Powder	3 00	—	..
Acid Anthracene Brown R. H.	1 25	—	..
Palatine Chrome Brown	75	— 1	20
Indigo—			
Synthetic, 20% paste	22	—	..

Little Change in Dye Situation

Buying Mostly of Routine Nature —Prices Generally Firm— Exports of Dyes

Inaction is the keynote of the market for coal tar products. Purchases are of a routine nature but prices are firm and practically unchanged. Crudes are in a firm position and dye prices show evidence of increasing stability.

Exports of finished coal tar products during the eleven months ending November, 1922, included 28,164 lbs. of color lakes, valued at $19,825; and 7,016,937 lbs. of other colors, dyes and stains, valued at $3,534,852. The value of the latter class during the first eleven months of 1921 was $4,812,122.

Exports of dyes from the United States during the month of November alone included 211,281 lbs. of logwood extract valued at $36,896; 313,733 lbs. of other dye extracts valued at $45,125; 1,702 lbs. of color lakes valued at $2,228; 1,084,890 lbs. of other colors, dyes and stains valued at $395,579. The largest taker of the latter class was China with 719,064 lbs. valued at $164,952; Quebec and Ontario second with 147,081 lbs. valued at $90,260; and Japan third with 97,867 lbs. valued at $80,438.

Dye Prices

Prices on important types of direct cotton dyes heard recently in the market include the following: Blue 2B, 40c.; Brown M, $1.25; Green B, 95c.; Benzo Purpurine 4B, 65c. On sulphur colors the black has been quoted around 20c. and the navy blue around 70c. In basic colors Malachite Green has been quoted at $1.50 and Methylene Blue at $1.75.

Natural dyes have continued to show general price firmness although operations have not broadened to any extent.

Dye and Chemical Notes

The Cowles Detergent Co. has been organized and incorporated to take over the distribution of the detergents manufactured by the Electric Smelting & Aluminum Co., Inc., Lockport, N. Y., including Sol-Esco, Escolite, Alumina Soapalite, Esco Mineral Cleaner, Escolite Mineral Cleaner, Escolite Aluminum Cleaner, etc. Hitherto the distribution and servicing of these materials have been handled by the same organization which was doing like service in the company's other field, the smelting alloying of non-ferrous metals. Today, however, it is felt that the distribution of the detergents requires a separate organization of trained specialists.

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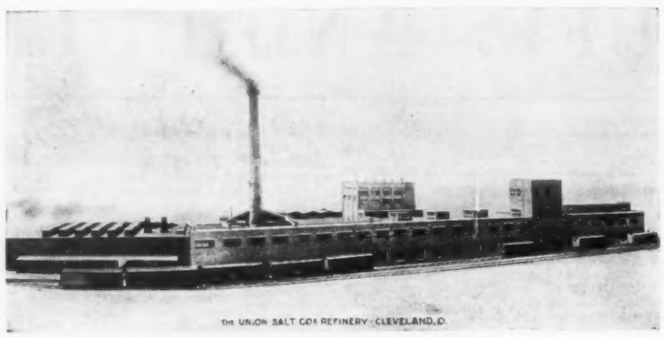

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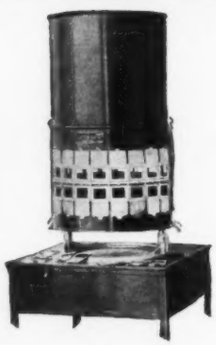

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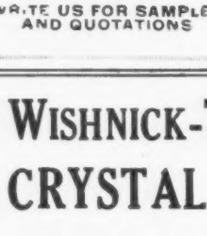

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Dyes and Chemicals—Continued

Co., Inc., has announced that its semi-annual Dyer's Formulas booklet is now ready for distribution. This edition contains formulas for matching the shades authorized by the Textile Color Card Association for the Spring of 1923. Detailed instructions are given for obtaining the designated shades on skein silk, cotton, wool and leather; and in each case the method of preparing the dye-bath with the requisite percentages is given.

The Cellulose Division of the American Chemical Society has recently been authorized as a permanent division of the society and wishes to enroll as members in the division all those who are interested in cellulose chemistry either from a scientific or practical standpoint. All members of the American Chemical Society wishing to become members of this division are requested to send their name and business connection together with $1.00 for dues to the secretary, L. F. Hawley, Forest Products Laboratory, Madison, Wisconsin.

The duPont Company announces duPont Phosphine G, a dyestuff especially adapted for use on leather. This color is used to some extent in the dyeing of silk and also in calico printing. For a color of this class it is reasonably fast to washing and light.

The Barnekow Chemical Co., New York, has been incorporated with a capital of $100,000. The incorporators are R. E. G. Barekow, T. C. Martin and T. H. Dugan. The company is represented by Larkin, Rathbone & Perry, 80 Broadway, New York.

The Sun Ray Chemical Co., Wilmington, Del., has been chartered under state laws with capital of $100,000. Thomas M. Brown, 1608 Broome street, Wilmington, represents the company.

The Emerson Chemical Corporation, New York, has been incorporated with a capital of $10,000. The incorporators are M. Hicks and J. Behl. The company is represented by A. C. Scheer, 149 Broadway, New York.

Continuous Dyeing Machines

(Continued from page 35)

class of colors, variations in temperature are reflected in irregular shades, hence the desirability of equipping the dyeing machine with temperature control appliances. For good and uniform results such instruments materially aid.

For charging the dye bath, some water is run into the boxes and heated. The dye is dissolved separately and added, followed by the other ingredients, and finally more water is added to bring up to the proper level. For the best results, the cloth should be either kier-boiled to remove all dressing, or else it should have been washed in the usual way. By either of these treatments, the waxes and starches of the dressings ought to be completely removed, and the goods made ready for dyeing.

It is a mistake to assume that the sodium sulphide in the dye bath will remove the dressing on the cloth in the dye bath during the dyeing. While it is well known that sodium sulphide acts on starches and its fine alkali dissolves starch, it has another and more important duty to perform in its chemical relation to the sulphur dye used.

Deprecate Labor Handicap

(Continued from page 21)

parity had in a great measure permanently ceased. The developments of the last two years have for the time being shown this belief was an illusion. We have reasons to hope at least that present conditions will not continue indefinitely, but we think it is no exaggeration to say that there has at no time been a wider difference between manufacturing costs in the two sections than exists at the present moment. These are so great indeed that there is scarcely a progressive manufacturer in New England who is not studying the situation with extreme anxiety. As you are probably aware, several important companies have already decided to move in part at least to the South, and we know that others seriously contemplate it. In fact, this movement has so rapidly assumed disquieting proportions that it already partakes more the aspect of a stampede than of any orderly exodus.

We are informed that there is a disposition among the Members of the General Assembly to enact certain industrial legislation that will certainly add to the cost of production in Rhode Island. We confidently believe that as Governor you desire the continued prosperity and development of the State and that you cannot fail to recognize the importance of cotton manufacturnig in Rhode Island.

We earnestly ask therefore that you will use your influence to prevent any hasty or ill-considered action on this subject. It is a matter that is being given thoughtful consideration by many of our people. The head of organized textile labor here, Mr. McMahon, has suggested the appointment of a Special Committee of the General Assembly to gather and study the facts of the case. This procedure has been approved by the committees of the Chambers of Commerce of Providence and Pawtucket. Other civic organizations are considering it.

As representatives of the industry itself, knowing the seriousness of the situation from our daily contact with it, we strongly urge that this course be pursued. If the proposed legislation is wise and timely, such an investigation will only furnish additional justification for it, and certainly no injury can come to anyone from a little delay.

We trust this course will have your favorable consideration.

Respectfully,
RHODE ISLAND TEXTILE ASSOCIATION,
E. F. WALKER, Secretary.

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An Enlarged Clearing House

Advertisers who have learned to appreciate the value of the " Clearing House " should keep in mind that there is one issue in which a " Super-Clearing House " appears.

That issue is the " Annual Review and Forecast Number." The 1923 " Annual " will appear on February 3. It will be well worth your while to reserve extra space in that issue, as it offers you a rare opportunity to sell all your " odds and ends."

Port Newark

Aerial view of U. S. Army Supply Base, Port Newark, N. J.

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WAR DEP

Textile World

EDITORS

C. H. Clark V. E. Carroll Clarence Hutton D. G. Woolf
(Subscription rates and other information will be found on page 503)

A TENET OF OUR CREED: WE BELIEVE IN THE CONSERVATION OF AND PROTECTION TO DOMESTIC INDUSTRIES.

Vol. LXIII February 3, 1923 No. 5

THE scientific forecasting of the so-called business cycle may be considered exact in its ability to anticipate major volume and price changes four to six months in advance. Confidence in such forecasting would have enabled manufacturers and merchants to set their houses in order for successfully meeting the business crash of 1920, and for anticipating the business recovery that started in the Summer of 1921.

Continued Upswing of Business and Finished Goods Prices Forecast

To attempt more distant and specific price forecasting in the present state of the science or art is to run the risk of becoming a prophet who "is not without honor save in his own country." Nevertheless, TEXTILE WORLD is approximating the latter risk with a specific forecast of textile business and prices for 1923, basing the same upon fundamentals of the business cycle developed by the Harvard Economic Service, supplemented by TEXTILE WORLD index charts and the opinions of leading manufacturers, bankers and trade paper editors. The forecast is for a continued upswing of business and of prices of finished goods, that possibly may be modified at the end of the year by crop results.

* * *

THE decreased protective duties upon wool and cotton manufacturers that came into effect last September with the imposition of the Fordney-McCumber tariff have made possible such a marked increase in imports that the adequacy of the new duties upon many textile commodities is open to serious question. On the other hand, the operation of the tariff on wools containing merino blood is an effective demonstration of TEXTILE WORLD'S contention that the rates upon crossbreds, or the poor man's wool, were unjustifiably high.

Elimination of Tariff Uncertainty the Best Feature of Existing Act

With all its faults, however, the existing tariff is a vast improvement over the Underwood revenue tariff bill, and there is ground for hope that the flexible provisions of the Fordney-McCumber bill may be utilized to render adequate certain unprotective sections. The most gratifying feature of the tariff situation is that uncertainty has been dispelled for at least eighteen months. In the meantime we may hope, even though with some qualifications and doubts, that the Tariff Commission will so demonstrate its ability to suggest satisfactory rate modification as to stimulate unpartisan belief in the wisdom of increasing its powers and, to that degree, of providing Congress with an unbiased and expert source of information for its tariff making.

* * *

ONE of the industry's most successful manufacturers admits frankly that he buys his cotton on "hunches." Possibly the guess or intuitive trading ability may always prove a more certain method of forecasting the right time to purchase so highly speculative a commodity as cotton, than a cycle based upon scientific determination of fundamental factors. If so it is an admission of human limitation of which we should not feel proud.

The "Hunch" Must be Eliminated from Manufacturing and Selling

Our constant endeavor in manufacturing and business should be to eliminate uncertainties, and through economic and technical research to locate and collate fundamental facts. The first step is to search out and collect for common use the large store of basic principles and facts that have been the product of years of experience and of rule-of-thumb methods. The next step is to engage in co-operative research work of a scientific and systematic character, adequately financed.

Technical research for the textile industry has gained considerable impetus in England and Germany through financial co-operation and direction of industry and government. In this country private effort is paving the way. That the industry's need of such work is serious and impelling is evidenced by many expressions in these columns during the last few years, and now by the endorsements of and comments on the plan proposed by John Bancroft, president of Joseph Bancroft Sons & Co., of leading manufacturers and scientists. They constitute a commanding call for the elimination of the "hunch" and guess in textile manufacturing and merchandising.

* * *

WITH a strike in retrospect and a year of activity in prospect, textile manufacturers face a problem in industrial relations far more complex than is generally realized. This problem is shared by industrial relations experts who find themselves in a position analogous to that of the churches when the world went to war in 1914. They are on the defensive and are called upon to explain the lack of progress toward industrial harmony achieved through their plans and theories.

Year Should Be an Inventory Period in Industrial Relations

Like the churches, they will find that their best defense is a strong offense. Their program should be one not of apology but of investigation.

This investigation should not necessarily follow the line of originating new plans but rather of adopting existing ones. One of the best-founded charges against most employe service work is its inflexibility. Blanket propositions have been offered as cure-alls before a diagnosis has been made. Second only to the error of totally disregarding the human side of manufacturing is that of installing an industrial plan without due consideration. In fact, it is to be questioned if the danger attached to the latter mistake does not outweigh the dishonesty attached to the former error.

The industry is headed definitely toward a period when in practically all plants there will be some provision for giving expression to the reactions of the workers. But intermediate steps must come first. "Welfare work" may have fallen into disrepute as such but in industrial communities where living and social conditions are bad, such activities are prerequisites to more advanced steps. Americanization classes may be considered "low brow" but, where the mill personnel is heterogeneous in nationality, they are essential.

Each mill is an individual problem. The steps to be taken depend upon the educational status of the workers from an economic standpoint, and upon the extent to which the management has won their confidence. Consequently if the year 1923 proves to be nothing more than an inventory period in industrial relations, it will have contributed largely to the solution of this general problem.

* * *

THE textile industry appears to have entered upon a vast program of plant modernization. Some of the most important construction work undertaken in the last year is of this character, new buildings replacing old ones and departments being reorganized and correlated. Hundreds of mills in the different branches have developed through periods of thirty, forty, fifty and more years, each successive stage of their growth being recorded by structures of varying design, the same operations often being carried on in several different buildings. Due to able management, the results obtained in many of these old mills have been surprisingly efficient, but even better results are achieved where modern layouts are provided.

Mill Construction and Modernization Program for the Industry

In the rebuilding of mills that is going on it is evident that manufacturers have left behind the old notion that beauty of form and utility cannot go together. There is no reason why a textile mill or other industrial building should not be good to look upon, and at the same time economical and practical if due attention be given to proportions, fenestration and detail under competent engineering direction. Of course there will always be men in textile and other lines who boast that they are practical above all things, and will close their minds to the value of attractiveness in design, but this is merely prejudice in most cases. The majority of new mills constructed for textile manufacturing show thoughtful attention to lines and proportions as well as fitness for manufacturing use.

There is also in evidence a policy of designing and constructing buildings of a somewhat higher initial cost, looking toward a saving in the end when maintenance becomes the prime consideration. Building equipment is of much higher grade than formerly, and in many cases compares favorably with that used in office buildings and hotels. Building equipment, exclusive of textile machinery, now frequently amounts to thirty-five per cent. of the construction cost of a mill. These advances are all made on the ground of increased produc-

tion, better workers, with pride in their efficiency and the high quality of their product. These all lead to economical production, which is the chief concern of every textile manufacturer.

Power costs have occupied an important place in the minds of mill executives during the last few years. While the immediate reason has been associated with the shortage and high cost of coal, it has directed attention to waste in water power utilization, with the result that numerous water powers have been reorganized during the last year. It is probably true, as contended by some authorities, that in many cases mill water powers would be found to operate at a loss if all proper charges were made against them. Twenty to thirty per cent. more power can frequently be obtained from the same amount of water with modern equipment. Electrical transmission has made it possible to utilize many small water powers more fully, as their use is now not limited to the machinery to which they are mechanically connected. The power of falling water is cheap and continuous, and its effective use offers one of the greatest sources of fuel conservation.

* * *

Textile Export Outlook Beclouded by Complications

WHILE the total export of textiles during 1922 has been maintained on a fair level as compared with previous years, changes in the character of these exports of such a radical nature have taken place as to give little basis for the hope of further expansion during the current year. In fact, the outlook is for a further restriction of export business, based on conditions which show little sign of improvement, but rather the reverse.

It must be admitted that the most important outlet for staple cottons abroad has been substantially lost to American manufacturers, with little hope of its recovery. China trade has shrunk to small proportions, and all indications point to a further shrinkage. Raw material and piece goods prices have reacted against the free movement of export goods, while increasing the possiblities of competition from other countries. At present it is estimated that the level of domestic prices is approximately 20 per cent. above the quotations of English and Japanese manufacturers. With the continuation of high costs the possibility of reaching a competitive level does not appear very bright.

But an even more important factor militating against the expansion of export trade is the recognized difficulty of producing a class of merchandise which can be bought by the millions in countries where purchasing capacity has been reduced to a minimum. This necessity has developed a tendency toward expansion of native mills for the purpose of producing the cheapest grade of goods. This tendency is most pronounced in China, where the success of local textile plants operated by a combination of native and foreign capital, has attracted the attention of textile and machinery manufacturers in this country. The possibilities of expansion in native industries are regarded as worthy of earnest consideration, not only in China, but also in India and in other countries, dependent in the past almost entirely upon imports.

It is true that the restriction of demand from the large consuming markets abroad has been offset by increased movement in other directions. But here also the necessity of providing merchandise that can be absorbed by the native has led to the development of a much lower type of fabric than has ever before been exported. The increase in the volume of prints exported to Central and South America and the Philippines has been at the expense of quality and consequently the aggregate value of this trade does not compare favorably with previous years. It is proof, however, of the contention made so often in these columns that it is encumbent upon American manufacturers to produce goods that the foreign buyer can buy if they are to hope for any continued export development.

Domestic manufacturers are not inclined to forego a profit and face an actual loss in order to be prepared for eventual return of export demand. Therefore they face the probable elimination of their brands from the important consuming markets with consequent increased difficulty, if not impossibility, of reestablishing a foothold in these markets. The question of consigning goods to certain countries is one which has been considered, and, while objected to as a general proposition, may see certain developments, especially where knowledge of credit conditions is available.

As a whole, however, the export situation does not hold out much of promise for the immediate future, whatever may be the results of settlement of international complications. As long as it is possible to consume the product of cotton mills in the United States no great concern over this situation is felt, but the time may come under decreased demand and lower prices when the loss of export business will be generally regarded as an industrial calamity.

* * *

Making Labor Go Further in Textile Mills

THE great achievements of the past are always worth recalling. Their greatest value, however, aside from the uses they have served in laying a foundation for further progress is in enabling us to picture the future. It was with this thought in mind no doubt that the National Association of Cotton Manufacturers included a review of mechanical developments in the program of its last convention. While some of the most progressive machinery builders and manufacturers took part in the discussion, it must be noted that nothing was developed that could be taken as a suggestion that improvements of methods or machinery are probable in the near future which will vitally change manufacturing processes and reduce labor attendance. We are probably far from the inventor's dream of automatic textile machines where bales of cotton and bags of wool are dumped into a hopper at one end and beautifully colored ginghams or highly finished cassimeres are doffed from the other, without assistance or interference from labor. The automatic loom will probably remain for some years as the latest great labor saving invention in textile machinery.

This logically leads us to consider what is to be the condition of the textile industry in the matter of labor supply with the growing uses of textiles and a national policy of restricted immigration. It means no doubt that we shall have to make such labor as we have go further with present equipment by more economy in the use of man power. It will be necessary to release more so-called nonproductive employes for productive work, saving a worker here and a worker there.

In material handling a great deal of labor is employed for pushing trucks and hand lifting and piling which can be released for attendance upon machinery. Conveyors or electric trucks have been installed in many mills by which one or two men can do the work of a dozen laboring under old-fashioned methods. A dozen workers released from this nonproductive labor are just as effective in increasing the labor supply as a dozen immigrants would be; in fact, they are probably more effective on account of their knowledge of the language and greater efficiency. While the industry apparently is not ready to follow the lead of a few mills that have completely equipped buildings for the mechanical handling of partially manufactured products and finished goods, many interesting conveyor systems have been worked out by mills to fit their individual conditions. Several installations have been made during the last year which show conclusive proof of the labor savings that are possible along this line.

Rearrangements of departments are another source of labor saving and the plant layouts in many mills are being reorganized with this end in view. In both reconstruction work and the erection of new mills more recognition is being given to the fact that one of the first requisites for the effective use of workers is to provide rooms with ample light. Larger window areas have been the rule for several years, whatever the type of construction, with better systems of artificial illumination. One new mill built in recent months has continuous steel sash, giving an unbroken line of light around the entire building except where broken by center and corner pylons. All these developments are made on the basis of making labor go further.

Far-seeing inventors and machinery builders have done great service in giving us the efficient machines of today. Technically, the industry is well advanced and realizes to a high degree its mechanical possibilities as compared with other machine industries. But there are still larger opportunities in many mills for improving conditions under which operatives work, and utilizing auxiliary equipment such as conveyors, which enable one operative to do the work that two did before, or one man and a machine to do the work that several have been engaged on. It is evident that the problem of making labor go further is not one that textile machinery inventors can solve immediately. It is a matter for each mill to work out by adopting the methods and equipment best adapted to its individual conditions. Individual effort is required, but there should be no slackers. The welfare of industry as a whole should be considered. We know from recent experience how labor efficiency decreases when there are more jobs than men.

The Textile Trend and Forecast

THE fundamentals governing the general business trend forecast a continued upswing during 1923, and, with certain minor modifications, this is the indicated trend in all textiles. Cotton, wool and silk are relatively high in price as compared with other basic raw materials, but volume of domestic consumption will maintain its general upward trend, as will prices of finished goods, for the latter are today relatively much lower than raw materials.

Raw silk and merino wools are approaching peak prices, but a sideways movement until autumn is more probable than any marked rise or decline. Crossbred wools, on the other hand, should continue their advance until a normal price relation with merinos is approached. Cotton prices are high enough to prevent any further increase in world consumption, but the forecast of a dangerously low carry-over at the end of the season of approximately 6,000,000 bales (of 500 pounds) will prevent any marked reaction in prices until there may be speculative assurance that a large increase in world acreage is to result in a sufficiently large increase in world production.

The volume of business and trend of prices during the last half of the year will be affected to some degree by crop volume and prices and their influence upon farmers' buying power. Nothing short of a general crop failure, however, can materially alter the upward swing of textile business before the end of the year.

MEDIUM and coarse count carded yarns followed the advances in cotton during the last three months of 1922 rather closely and have now worked into a position independent of the latter. Staple cloths have lagged behind cotton and were selling at the close of the year far below replacement costs. TEXTILE WORLD'S index number for cloths advanced during 1922 only 34 points, as compared with 58 points for cotton and 50 points for carded yarns. This forecasts firm prices for yarns and a further substantial advance in cloths.

RECORD imports of 392,000 bales of raw silk during 1922 compared with a previous high mark of 330,000 bales, with moderate supplies in warehouse, indicate free consumption and higher prices which, however, are likely to be resisted. High consumers' buying power forecasts liberal consumption of luxuries benefiting silk products. The possibility of a buyers' revolt is recognized as a factor during the second half of the year provided the upward raw material trend is not checked.

ACCORDING to TEXTILE WORLD'S index numbers wool on January 1 had advanced in twelve months 81 points, tops 65 points, yarns 39 points and cloths had moved up only 9 points. Assuming merely a maintenance of the 1922 volume of consumption and firm wool values there is forecast a further advance in yarns and a very marked rise in goods values. Continued popularity of carded woolens, especially in overcoatings, is indicated with an increasing distribution of staple worsteds. A similar trend is reflected in dress goods.

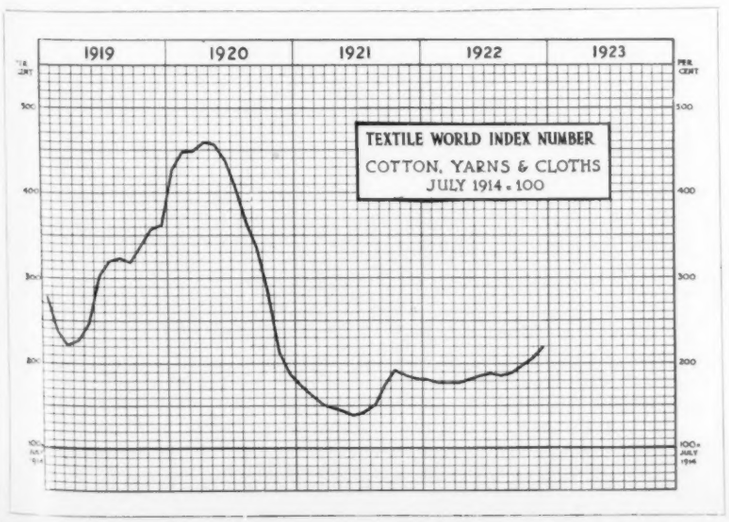
OPERATIONS in both hosiery and underwear indicate buyers' acceptance of moderate price advances as justified. Difficulty of selling knit goods on a basis of replacement costs has been a feature of 1922 and may continue in the case of manufacturers compelled to complete season's yarn requirements on existing levels. Publicity campaigns current and anticipated are expected to influence consumer demand for knitted fabrics. Development of greater variety of product is regarded as a beneficial factor.

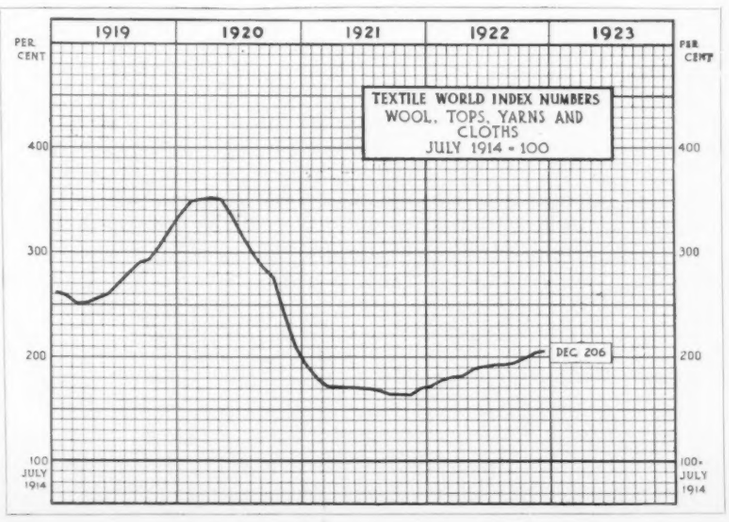
Date.	Cotton.	Yarns.	Grey Goods.	Colored Goods.	Average for Cloths.	Combined Average.
1914						
July 31	100	100	100	100	100	100
1919.						
January	235	278	280	295	288	279
March	215	221	214	236	226	221
June	262	294	328	292	308	301
September	236	314	350	315	331	319
December	294	350	432	327	376	362
1920.						
March	328	531	475	410	440	449
June	317	510	443	427	435	439
September	253	290	300	413	359	335
December	128	142	178	232	206	187
1921.						
March	93.5	125	146	187	168	153
June	100	105	134	171	154	139
September	148	160	172	194	184	175
December	146	163	177	208	193	182
1922.						
January	146	168	174	206	191	182
February	141	157	165	209	188	177
March	148	160	166	209	189	178
April	144	156	168	209	189	178
May	163	165	178	206	192	182
June	167	177	187	200	194	186
July	178	182	190	200	195	189
August	172	182	190	193	191	186
September	171	186	194	195	194	189
October	177	192	206	201	203	197
November	203	214	219	203	210	207
December	204	218	222	228	225	219

TEXTILE WORLD INDEX NUMBERS

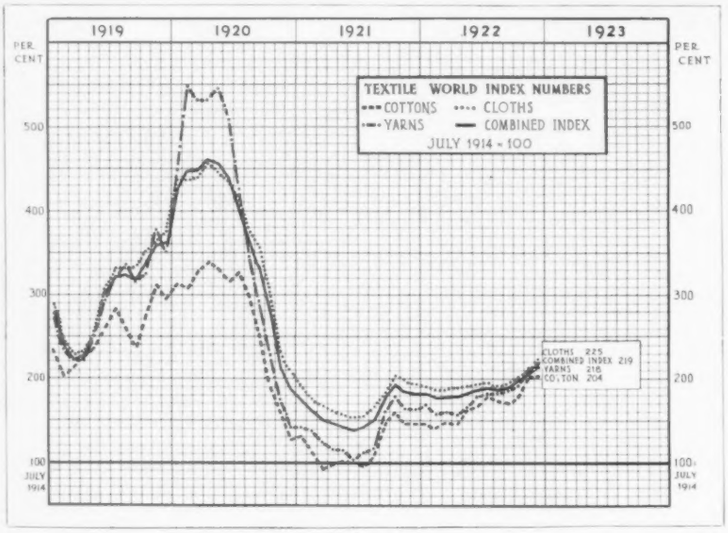
THE index numbers for cotton and wool and their manufactures that have been compiled and charted by TEXTILE WORLD, and that hereafter will be a regular part of its statistical service, are calculated as a percentage of prices of staple and typical groups of both classes of commodities for July 31, 1914, as the basis (100). This common basis for raw materials, yarns and fabrics makes possible an accurate comparison of percentage fluctuations. Prices of July 31, 1914, were taken as 100 because of the desirability of making comparison with British index numbers compiled on that basis, although for wool and its products 1913 may be considered more normal.

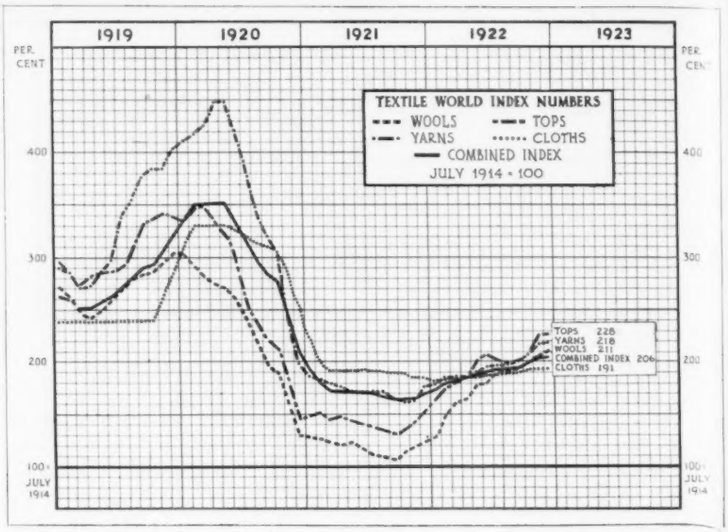
Date.	Wool.	Tops.	Yarns.	Cloths.	Average.
1914.					
July	100	100	100	100	100
1919.					
January	272	296	298	237	263
March	247	276	270	237	252
June	260	287	296	237	262
September	284	332	378	237	291
December	304	338	404	286	323
1920.					
March	282	348	426	331	350
June	260	300	419	326	336
September	199	224	320	311	285
December	132	147	197	253	210
1921					
March	122	145	179	192	173
June	117	141	172	193	171
September	107	132	165	189	165
December	123	154	177	184	171
1922.					
January	128	163	179	182	173
February	148	177	185	184	179
March	162	180	185	184	181
April	165	185	185	184	182
May	178	202	190	185	188
June	178	209	195	186	191
July	189	202	196	188	193
August	191	199	196	189	193
September	192	202	199	190	194
October	199	209	208	191	199
November	206	226	218	191	205
December	211	228	218	191	206

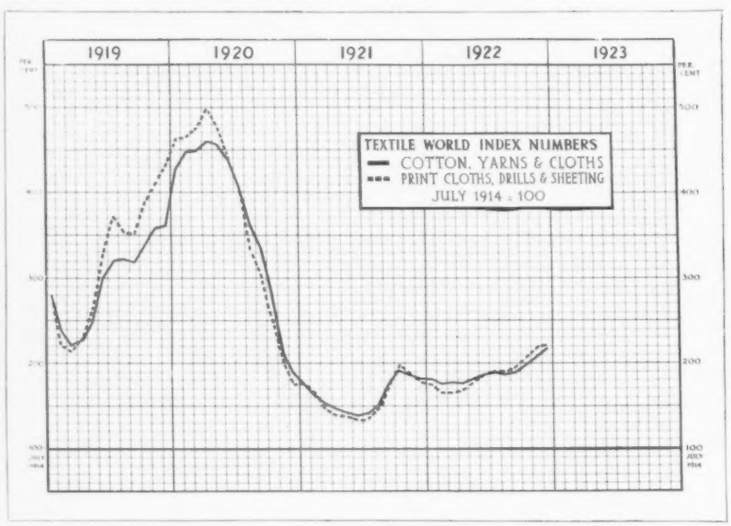


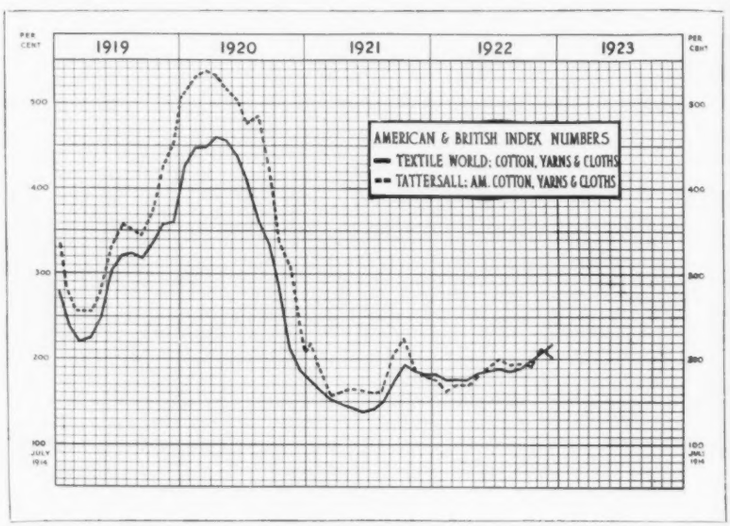


Index Charts—Continued

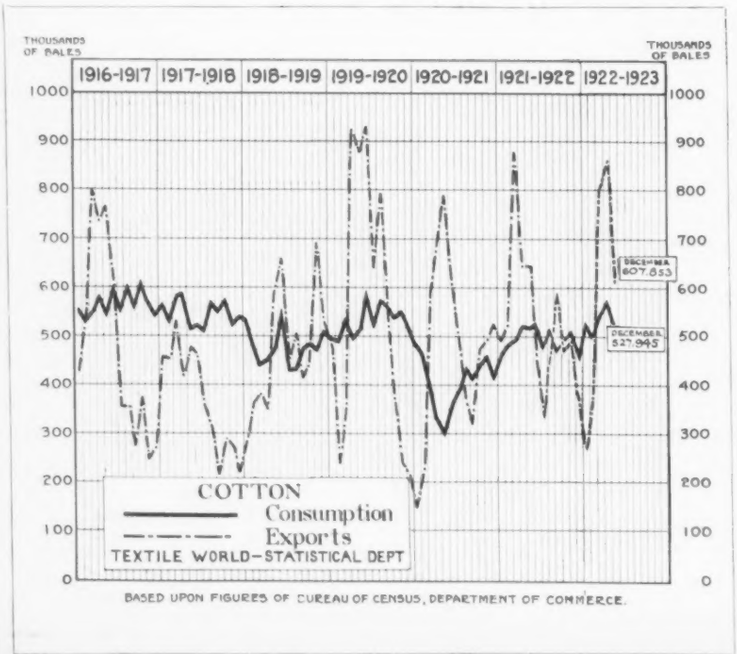


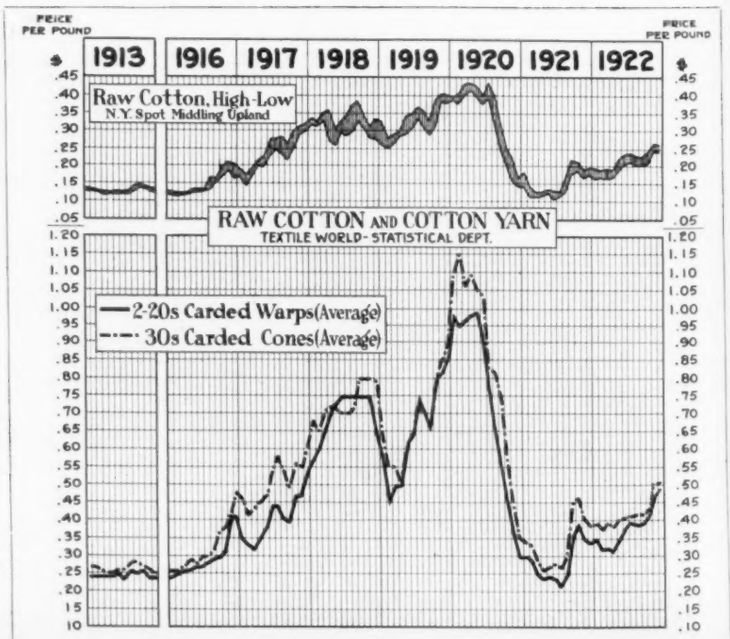


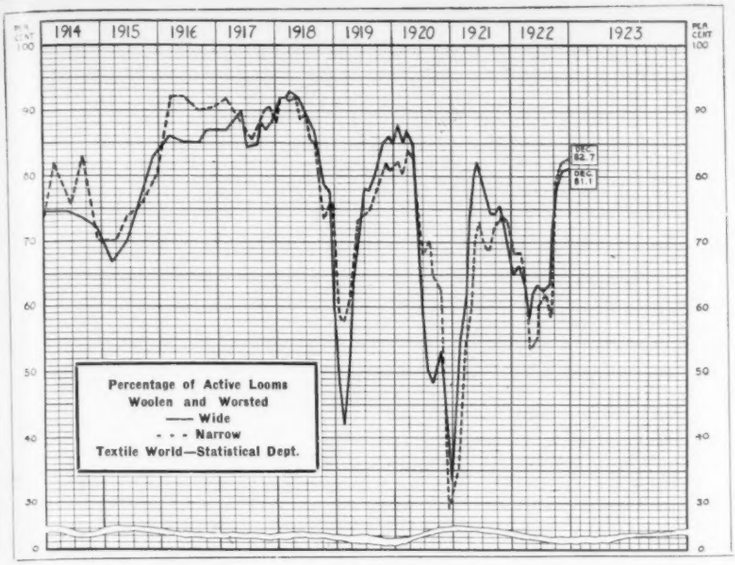


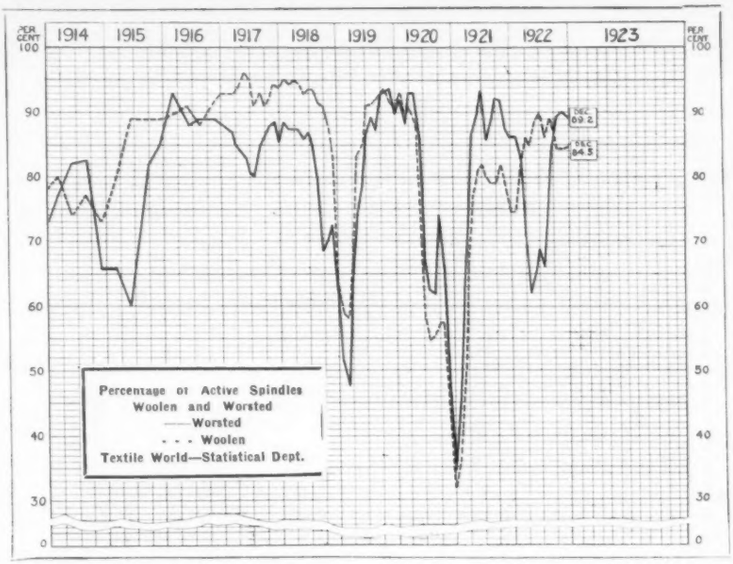


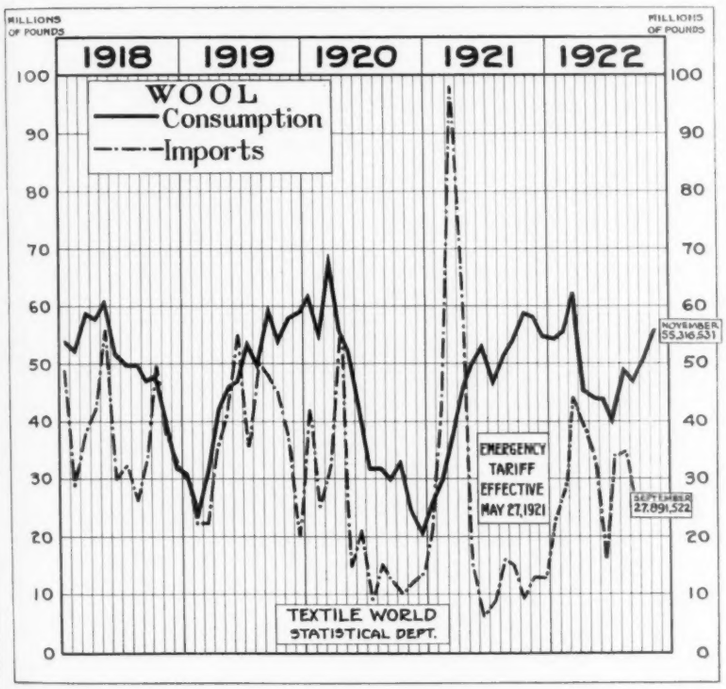
Textile Prices and Activity

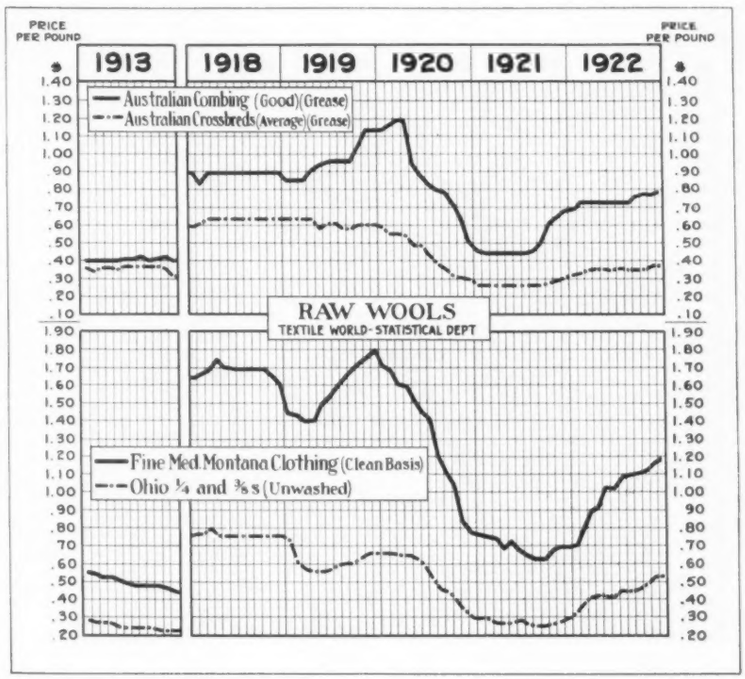


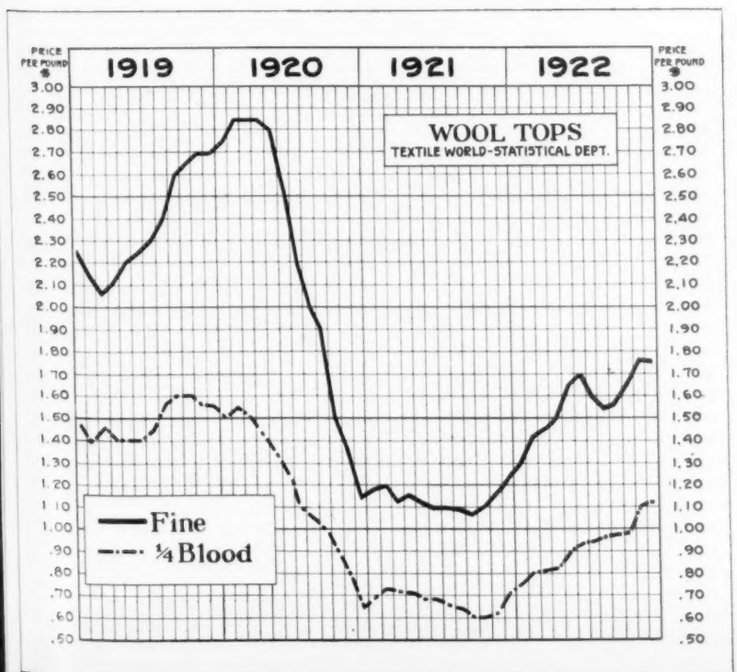


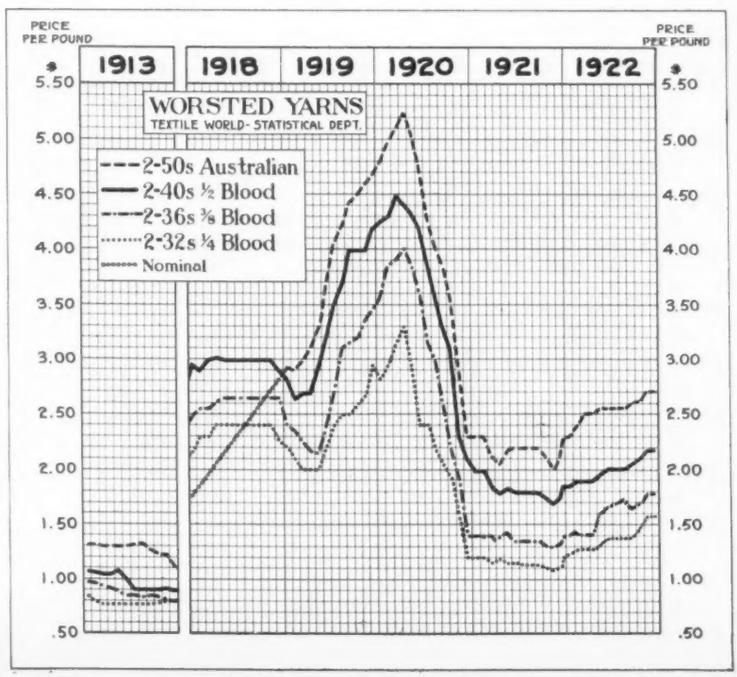

1914
1915
1916
1917
1918
1919
1920
1921
1922
1923
PER CENT
Percentage of Active Looms
Woolen and Worsted
Wide
Narrow
Textile World—Statistical Dept.
DEC 82.7
DEC 81.1


1914
1915
1916
1917
1918
1919
1920
1921
1922
1923
PER CENT
Percentage of Active Spindles
Woolen and Worsted
Worsted
Woolen
Textile World—Statistical Dept.
DEC 89.2
DEC 84.5


MILLIONS OF POUNDS
1918
1919
1920
1921
1922
WOOL
Consumption
Imports
EMERGENCY TARIFF EFFECTIVE MAY 27, 1921
NOVEMBER 55,316,531
SEPTEMBER 27,891,522
TEXTILE WORLD STATISTICAL DEPT.


PRICE PER POUND
1913
1918
1919
1920
1921
1922
Australian Combing (Good) (Grease)
Australian Crossbreds (Average) (Grease)
RAW WOOLS
TEXTILE WORLD-STATISTICAL DEPT
Fine Med. Montana Clothing (Clean Basis)
Ohio ¼ and ⅜s (Unwashed)


PRICE PER POUND
1919
1920
1921
1922
WOOL TOPS
TEXTILE WORLD-STATISTICAL DEPT.
Fine
¼ Blood


PRICE PER POUND
1913
1918
1919
1920
1921
1922
WORSTED YARNS
TEXTILE WORLD-STATISTICAL DEPT.
2-50s Australian
2-40s ½ Blood
2-36s ⅜ Blood
2-32s ¼ Blood
Nominal

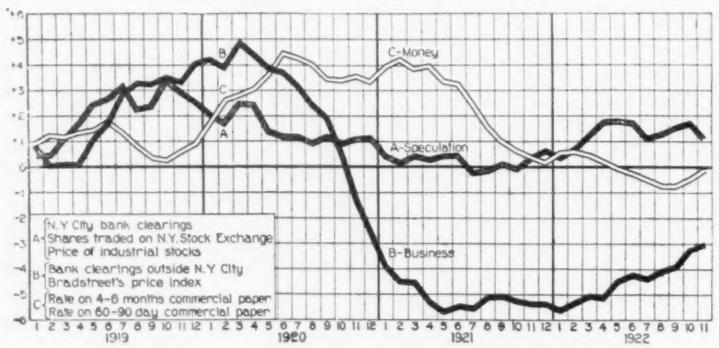
Fundamentals of General Business

THE foundation upon which textile as well as general business now rests is solid and the recovery from the depression of 1921 has been decidedly substantial. According to the Harvard Economic Service we are now somewhere near the middle of a fairly normal business cycle which began in the summer of 1921 and should last three or four years. There is no real boom in sight for textiles or any other major industry, and none is to be expected. The upswing will not be of equal strength and duration for all industries, nor for all branches of those industries, and the experience of textiles will be no exception.

The peak of the cycle will be touched earlier by some industries than others, and presumably the earliest by those that were first to start the upswing. Among the latter were the cotton and wool industries, and it is not impossible that the close of 1923 will find them approaching the peak; whether the immediately following period of the present cycle will be a sideways movement of business volume and prices will depend very largely upon whether the wartime and later expansion of plant equipment balances the new normal of consumption.

There were two rather sharp declines in the speculative curve during 1922, but there was but a moderate rise in money rates and until the latter indicate the approach of credit stringency the upswing of business may be expected to continue. The average movement of the speculative curve during the last ten months of 1922, in fact, represented a typical sideswing and one that may prove to be devoid of significance in the forecasting of the business trend. It is money rates and credits, therefore, that should be watched for indications of an approaching change in the business trend, and as we are but little more than four months from minimum money rates the outlook for general business in 1923 seems bright.

HARVARD ECONOMIC SERVICE INDEX CHART



Explanation: It will be seen that a logical and important relationship exists between the movements of the three curves—speculation, business and money—recorded on this chart. All three have wave movements, but there is an interval of several months between the swings of each curve. Thus upward or downward movements of curve A, speculation, precede the corresponding movements of curve B, business, and these, in turn, precede the upward and downward movements of curve C, money rates. It is this regularity in the order of the movements of the three curves which forms a logical and practical basis for forecast.

The fundamental factors of a favorable and unfavorable character are as follows:

Favorable

Money rates easy and credit resources enormous.

Good 1922 crops with values 32 per cent. higher than for 1921.

Employment exceeded only during 1919-20 boom.

Consumers' purchasing power steadily increasing.

Industrial production exceeded only in 1919-20.

Prices of manufactures strong and advancing.

Converters and distributors anticipating future needs more freely.

Trend of security prices upward.

Car loadings near record average.

Railroad earnings slowly increasing.

Exports well maintained.

Record building construction.

Unfavorable

Shortage of both unskilled and skilled labor impending.

Farm product prices, excepting cotton and wool, relatively low.

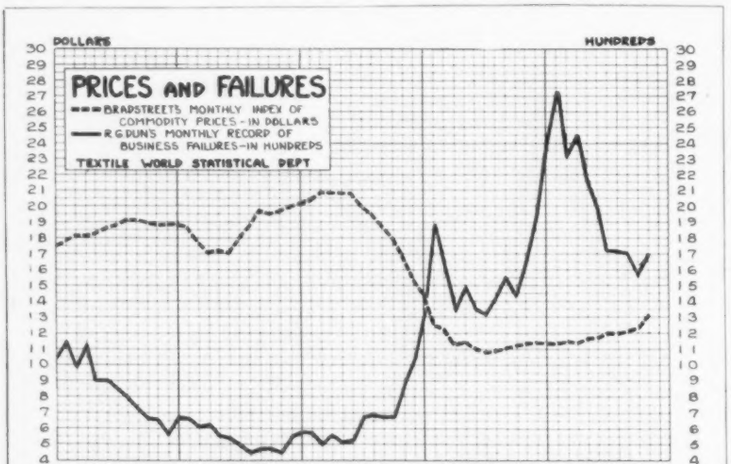
Textile profit margins small.

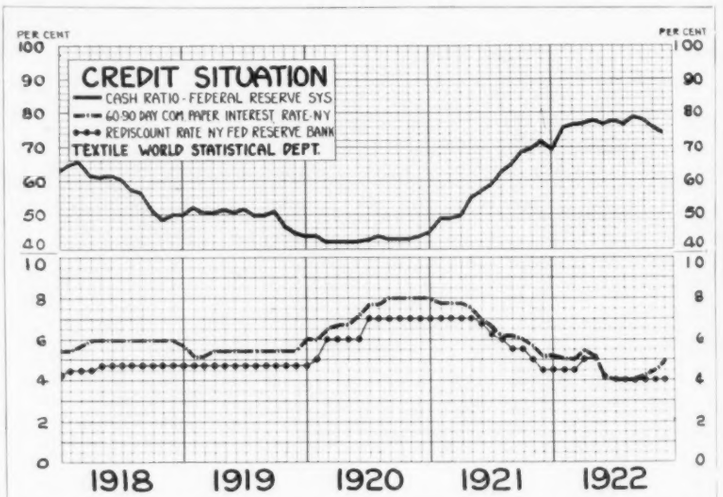
Textile imports increasing.

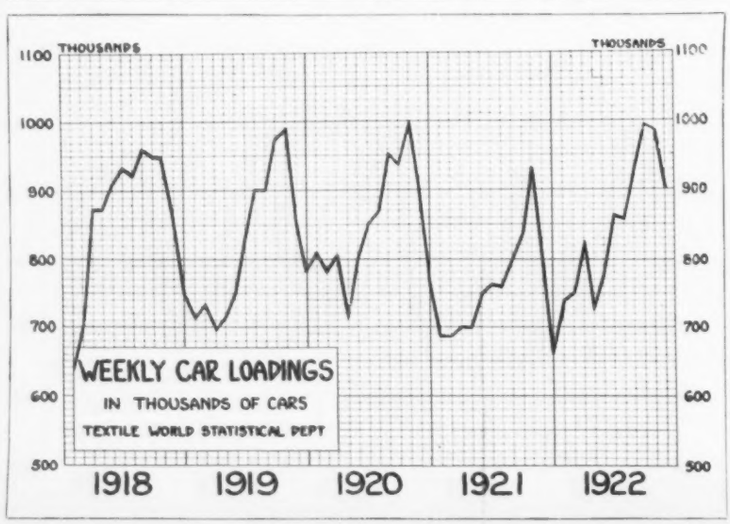
Radical legislation threatened.

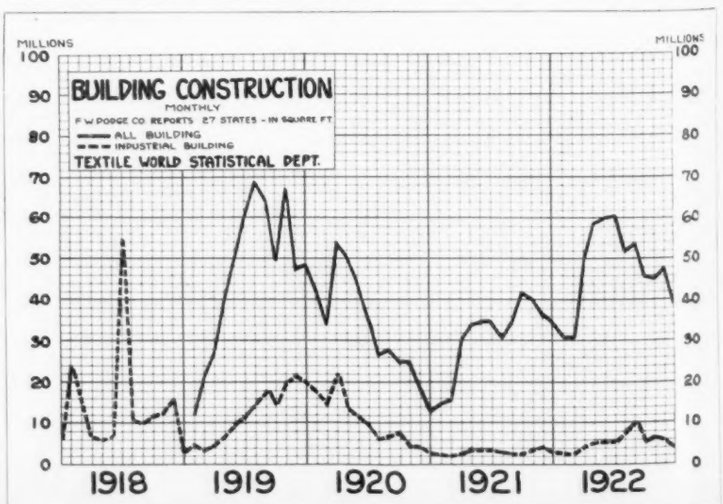
Inadequate railroad facilities.

Gold exports an early possibility.









Business Outlook in Theory and Fact

Underlying Conditions Reflected in Statistics of Harvard Economic Service Indicate Continued Improvement and a Year of Good Business in 1923—Barring Unexpected Developments in Europe the Business Up-Swing Should Continue Until Movement of Money Rates Indicates Approach of Credit Stringency

(From Harvard Economic Service Letter of January 6)

Through the courtesy of Professor Charles J. Bullock, chairman of the Harvard University Committee on Economic Research, TEXTILE WORLD is able to present to its readers excerpts from the January 6 letter of Harvard Economic Service which contain a most illuminating exposition of the most important and prevalent theories regarding the nature and extent of the business recovery which has taken place and its probable duration, and that also presents the Harvard Economic Service views on the same subjects.

TEXTILE WORLD accepts this statistical organization's views of underlying business conditions and the business outlook as the foundation upon which to build up its own forecasts of the textile outlook for 1923. The Harvard Economic Service has the enviable reputation of having forecasted the peak of the 1919-20 boom by several months, and its uniform accuracy since then in forecasting important changes in the business cycle by from three to six months has been little short of miraculous, and impels the confident assumption that it has collated the fundamental facts governing the general business cycle in such a manner that it can accurately forecast major and minor changes sufficiently far in advance to give its subscribers ample time to anticipate them.

IF opinion and sentiment had been controlling factors there is no telling how far the recent liquidation would have gone; at the height of a boom and in the depth of a depression the crowd is always wrong, and it is the exceptional man who avoids the prevalent illusions.

But economic facts will not be denied; during the summer of 1921, defying widely accepted opinion, business began to improve, very slowly and unevenly at first, with halting gait, with little confidence, with temporary reactions, and in volume too small to bring immediate profit. Without much help from opinion, and in the face of most pessimistic predictions, it has continued to recover until today few observers doubt that 1922 brought substantial improvement and that 1923 opens with fair prospects. Opinions still differ, however, as to the nature and extent of the recovery which has taken place, and as to its probable duration. Under these circumstances it may be helpful to review the divergent opinions which the business man is now encountering in the street, at the club, at his bank, in his industry, and in responsible publications.

Present Theories

The internationalist is still with us. European conditions remain chaotic, we are not yet in the League, no real "settlement" has been reached in regard to debts owed the United States, and we have done nothing to promote the solution of the vexed question of reparations. Until these matters are attended to no real prosperity can prevail in the United States, and it is maintained that such improvement as has occurred during the past year is a mere "flash in the pan." Unless we co-operate heartily and actively, Europe faces a certain *débâcle*, perhaps during the present winter, and worse things lie ahead of us than we have yet known. Such is the gloomy outlook of the internationalists. Our own views are well known to subscribers, and need not be argued at length in this *Letter*. European conditions are bad in many respects, and react unfavorably upon the United States. We should be glad to have the United States do the right thing, but question the wisdom of some of the proposals of the internationalists. Perhaps if sentiment could be laid aside, and this country could consider what it ought to do as an intelligent creditor, it might exert a helpful influence upon European policies.

We still have, also, those who hold that commodity prices and everything else that moves with them must ultimately return to the pre-war status, and therefore regard the improvement of the last eighteen months as a temporary interruption of a long downward swing that will ultimately land us about where we were in 1913. The extremists of this group have sometimes appeared to regard every favorable development since June, 1921, as a misfortune which could only tend to postpone the inevitable and deceive the business community into thinking that nature could be prevented from taking its own course. In our *Letter* of the 10th of last June, we presented our reasons for thinking that during the present decade commodity prices are more likely to play around present levels than to decline to the level of 1913; and we therefore allude to the theory just mentioned merely for the purpose of giving a complete review of the opinions with which the intelligent executive must reckon.

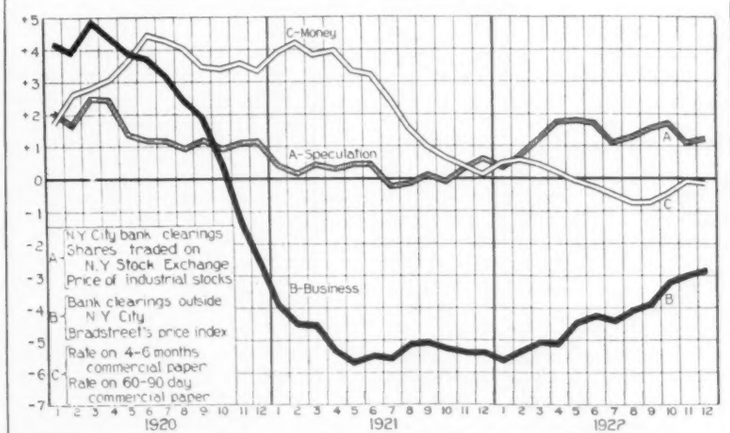
View of "Secondary Inflation"

A third opinion, somewhat widely prevalent, is that we have entered upon a period of "secondary" inflation: the war gave us our first and great inflation which was inevitably followed by drastic deflation, and this in turn has been followed by a "secondary" inflation such as sometimes occurs after great wars. Instead of accepting the deflation of 1920 as an accomplished fact and readjusting affairs accordingly, we have seen fit to revive the War Finance Corporation, undertake an ambitious program of public works financed with borrowed money, and carry on what is termed "prosperity propaganda," with the result that artificial stimulants have been applied and "secondary" inflation has begun. Large gold imports have favored this movement, and may presently be expected to carry it to greater lengths. The whole process is believed by these theorists to be unnatural and unhealthy, and unless checked it will produce nothing but undesirable results. In this view of the case, we may have before us a short-lived period of fictitious prosperity which will end in another collapse, perhaps more serious than that of 1920 because many concerns have lost the reserves which absorbed a large part of the previous shock. According to this view there is little that is natural or healthy in the business improvement of 1922, and the present outlook is therefore one that should cause serious misgivings if not alarm. In recent months rather less has been heard of "secondary" inflation, but when the present business cycle enters upon its final phase—that of recession of prices and business activity—we shall doubtless be told that such inflation has run its inevitable course, and that the country is suffering the natural results of the artificial stimulants applied during the past two years.

Speculation Deprecated

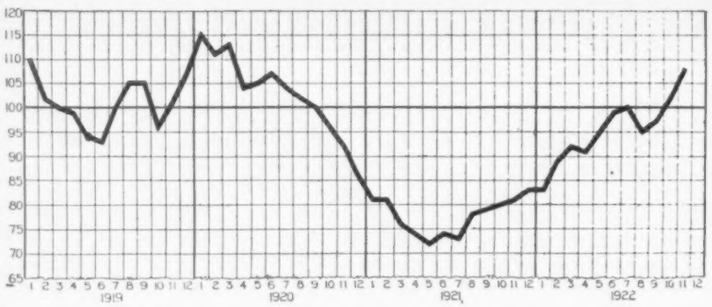
A fourth theory was gradually evolved during 1922, and is now held somewhat widely in banking and other influential circles. According to this, liquidation ran its natural course in 1920 and 1921, and was followed by a natural rebound of business which is gradually bringing prosperity. The improvement which has taken place is substantial and encouraging, but there is now danger of inflation. Gold imports and the expansive power of the federal reserve system are the dangerous factors, and it is important that during 1923 speculation should be held in leash and business kept on an even, conservative course. Prosperity is returning, but there is serious danger that bullish enthusiasm will lead to another boom which, as the result of an apparently strong banking situation, may lead to a repetition of the excesses of 1919. Gold reserves are large, but we hold considerably more of the yellow metal than we can hope to retain permanently, and there is danger of unwise credit expansion leading to another period of inflation. This view is in some respects like our own, but it does not make allowance

HARVARD ECONOMIC SERVICE INDEX CHART



Forecast—The Outlook for the First Half of 1923 is for Rising Wholesale Prices and an Expansion of Business Activity, with the Strong Probability of a Continuation of the Upward Swing During the Second Half of the Year. The Recovery of Business Has Been Both Persistent and Substantial, as Shown by the Steady and Marked Rise of Curve B (Business) of the Index Chart Since January, a Year Ago

ADJUSTED INDEX OF VOLUME OF MANUFACTURE (NORMAL = 100)



Note: In constructing this index, both long-time tendencies and seasonal variations have been eliminated. The fluctuations of production reflected by the movements of the curve relate almost entirely to the business cycle. The influences of industrial disturbances such as widespread strikes are, however, apparent in the lesser movements of 1922 and late 1919. Each series incorporated in the index is adjusted for seasonal influence and converted to percentages of normal. "Normal" here is statistically determined on the basis of experience of both good and bad years, long-time tendencies being considered. In general, normal represents a condition above and below which the fluctuations of the business cycle occur.

for the inevitable up swing of the business cycle. It assumes that it is possible, through corrective action of the reserve banks or otherwise, to eliminate speculative and business enthusiasm, and thereby flatten out the curve of the business cycle and keep business on what may be termed an even course, enjoying access to what is called a stable volume of bank credit but receiving prompt correction the moment it departs from the golden mean. If human nature were something different from what it is, if enthusiasm could be largely eliminated from any form of successful activity, and if there were some agency generally recognized to be wise enough to administer corrective treatment in the right amount at precisely the right time, this opinion might have its attractions; but with things as they are, we do not believe that regulative measures can do more than moderate the extremes of business expansion and depression. With some misgivings, therefore, such as can never be eliminated from human affairs, but with confidence in the soundness of the present situation, we look forward to a continued upswing of the business cycle.

Reaction This Year

There is still a fifth theory, which must not be left out of account. It holds that, while business has undoubtedly improved very materially and will continue to advance for several months to come, there are certain maladjustments in the present situation which will bring a reaction some time between the spring and fall of 1923. The first trouble is that prosperity is unevenly distributed, and that while the condition of the farmer has improved, his purchasing power has not been completely restored. The second difficulty is that the prices of cotton, wool, construction materials, and other basic commodities have all risen to high levels, and that wages are beginning to advance, so that operating costs are on the increase before a satisfactory margin of profit has been restored. It may be possible to advance the prices of finished products to an extent sufficient to compensate for higher cost; but in many lines, notably textiles, it is believed that stubborn resistance will be encountered from consumers, who, especially if they be housewives, will ultimately have their way. In addition to this resistance of consumers, it is believed further that business will suffer from car shortage and other transportation difficulties which will slow up the movement of goods and increase credit requirements, which are already rising as the result of higher prices and of expanding business activity. The prospect, therefore, is believed to be for rising costs, meagre profits, and increasing credit requirements, which will result in a definite reaction before the end of the present year.

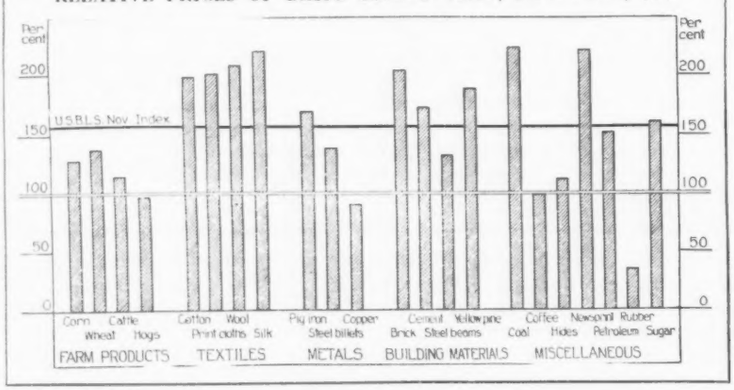
This last opinion seems to us to lay undue stress upon difficulties which may not prove as serious as anticipated. Consumers' resistance is always encountered when prices swing upward, except in times of wild inflation and extravagant spending, such as obtained in 1919. It may be serious in some lines of industry this year, but upon the present evidence it cannot be assumed at this time to be a condition that will generally prevail. Purchasing power is certainly upon the increase and may suffice for such a volume of production as we are likely to have. Labor shortage is already developing, and transportation difficulties are likely to persist; but such factors have not been a controlling influence in the last two business cycles, and may not control at the present time.

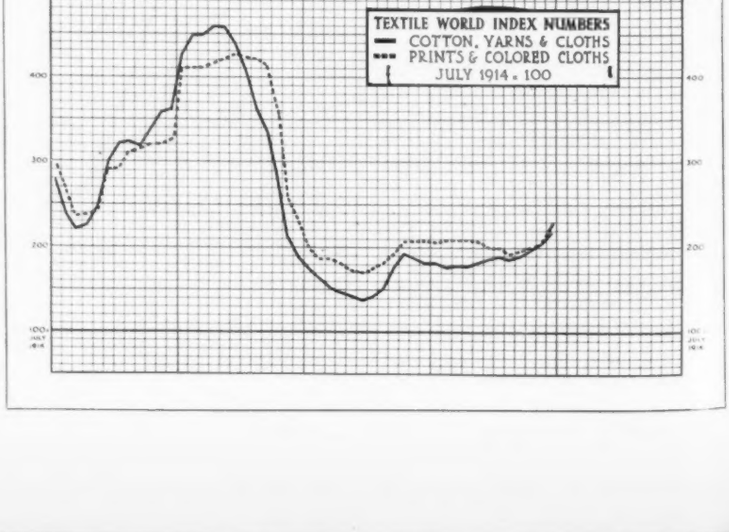
Conclusion

Our own views are familiar to subscribers, and have been partially indicated in the above discussion of prevailing theories. We believe that, just as European complications have not prevented the development of a normal cyclical movement up from the recent depression, so they will not (barring another war) prevent the completion of this movement. We believe that the general trend of prices during the present decade will not be downward to the 1913 level; and that, even if, in some subsequent decade, that level is ultimately reached, we shall reach it only after the completion of a number of business cycles which will need to be included in the reckoning if the probable course of business is to be correctly forecast. We have found that the war did not destroy the old landmarks, and that it has been possible since the spring of 1919 to forecast the major movements of business by the use of familiar statistical data. In January, 1923, we are somewhere near the middle of a tolerably normal business cycle which began in the middle of 1921 and should be completed within three or four years from that date.

The recovery of business has already been substantial, and rests upon a solid foundation. The fact that buying is still conservative and confined largely to current needs is not a reason for pessimism, but evidence of the healthful character of the movement of the last twelve months. When buying becomes excited and feverish and credit becomes strained, we shall expect a reversal of the present upward tendency in general business. Money is now in some demand and rates are somewhat higher; but we are only four months away from the low point reached by our money curve after the recent liquidation, credit is in no way strained, and the banking situation is absolutely sound. Business conditions are uneven and at some points unsatisfactory, but they are always so after a depression of such severity as that through which we have passed. A return of prosperity is the best and the only possible means of bringing into line the factors which now suffer from maladjustment. Renewed liquidation, even if it could be forced at this moment, would surely fall with chief weight on producers of foodstuffs and basic materials, as it usually tends to do. We see no "boom" in sight, and none may develop during the present business cycle. This has sometimes occurred in times past, and we hope it will be so in this instance. Current opinion would have been a poor guide at almost every stage of the present business cycle, since it is largely the creature of the moment and does not reckon sufficiently with the significant underlying factors. The only safe course has been to follow the old landmarks and appraise current developments in the light of fundamental conditions which seem to govern the business cycle. Not because business sentiment is generally hopeful at the present moment, but because the underlying conditions reflected in our statistics indicate continued improvement, we look forward to a year of good business in 1923. Leaving out of account unexpected developments in Europe, we believe the movement of money rates is the significant factor at the time of writing. Until this indicates the approach of credit stringency, we shall expect a continuation of the upswing in business.

RELATIVE PRICES OF BASIC COMMODITIES, DECEMBER, 1922





Textile Leaders Hopeful of the Future

Heads of Industry's Associations Prophesy an Increased and More Profitable Business for 1923, at the Same Time Recognizing the Danger of Speculation in the Conduct of Manufacturing Operations, But Expressing the Belief That Past Experiences Will Prevent Disaster

THE FOLLOWING opinions from leaders in the textile industry, comprising certain of the presidents of textile associations in the country were solicited by TEXTILE WORLD with the idea of giving to the trade a consensus of opinion from those who have been recognized as among the most outstanding figures in the respective divisions of the trade. It is interesting to note that the consensus of opinion is optimistic. Recognizing the dangers of over-speculation and the disastrous results which might accrue from such a course, textile manufacturers agree that conditions would seem to make for better business during 1923 than in the preceding year and for the first six months at least there is no hesitation in prophesying a healthy and profitable business. The statements of manufacturers follow:

Cotton Goods Outlook

By *Robert Amory**

ALL business movement is a series of waves. Such waves are accentuated both as to extent and degree of sharpness by such international disturbances as the World War. In 1915 and for the first four months of 1920 cotton and its manufactures moved up steadily, then they dropped steadily until 1922 was well under way. This was a perfectly normal wave, but the five years of war preceding it exaggerated the movement tremendously. The upward movement—the natural reaction from the fall of 1920 and 1921—starting in 1922 is far more orderly and steady than its predecessor and evidently has not yet culminated.

Beside the strength which is part of the natural economic trend there are several other factors today which make for strength in the cotton goods market. First and primarily, the strength of raw material, of which there is an undoubted shortage, and the price of which is steadily rising; second, the known scarcity of manufactures of cotton. Underlying both these factors is the general soundness of business conditions in the United States. There is an abundance of money to be loaned at reasonable rates for sound industrial and mercantile enterprise. Unemployment is virtually non-existent. The building trades are continuing active, and such barometers as mail-order house distribution and car loadings show a strong rising tide of business. Every indication is for good business for this year. The cotton goods business is reasonably certain to be very good for the first six months of the year. There is only one thing which could possibly prevent business being good for the whole year; namely, a successful attempt to raise wages, combined with a price on raw cotton which would necessitate such costs as to preclude successful distribution by the manufacturers, because the pyramiding of cost incident to the system of retail distribution would bring about a prive level at which the public might refuse to buy and force mills to shut down. However, there is no question that cotton goods purchased on prevailing levels today should show the purchaser a handsome profit when finally merchandised.

The only cloud on the horizon is the situation in Continental Europe. The action of the stock market, which in some mysterious way seems to feel the events to come six months ahead, would make it appear, however, that any calamity which could be imagined has been thoroughly discounted.

It would seem, therefore, that merchandising policies, certainly for the next six months and probably for the rest of the year, should be based on the ground that business is going to be good, and that if conditions remain reasonably stable, steadily rising prices will prevail.

* Of Amory, Browne & Co., and President National Association of Cotton Manufacturers.

Textile Outlook for 1923

By *C. E. Hutchison**

BROADLY speaking, all indications point to good business in practically all lines for 1923. It is almost a safe prediction to say that an active and normally prosperous business is assured for the first six months at least, and on that assumption there is no reason that the textile trade should be any exception, for it is a demonstrated fact that no one line of industry can be either prosperous or the reverse for an extended period and all other lines be otherwise, and no one section of our country can be prosperous or not prosperous for a great length of time and all other sections be otherwise. From the best information at hand it seems that the cloth business has, as a general rule, been more satisfactory than the yarn business during the past year, especially among southern mills.

Inasmuch as the section of the textile industry with which the writer is connected is the manufacture and sale of yarns, combed and carded, plain, mercerized and gassed, he will confine his views more particularly to this branch of the industry. Since the deflation, which started in 1920, this division of the industry has been very unsettled, and I might say, unsatisfactory as a whole till quite recently, though some descriptions, particularly high grade fine combed yarns have shown more or less satisfactory results, but conditions in carded yarns have not as a rule been satisfactory. However, starting with the incoming of the new cotton crop of 1922, which indicated a small or very moderate yield, which indication has been more than verified, and coupled with the general expansion and increase in nearly all lines of industry, the yarn market has become active with a strong demand and advancing prices. With the tendency of new mill construction in the South towards weaving instead of making yarns for the market, it looks as though conditions in yarn manufacturing will continue to improve till yarns will again be on a satisfactory basis and in keeping with other branches of the textile industry, which as a whole, with practically all other commodities, are apparently on a healthy basis.

With the comparatively small amount of unemployment; with ample money for all legitimate enterprises; with the railroads all placing vast orders for rolling stock and betterments; with higher prices for farm products, which all make for increased buying power, it looks as though we are in for a protracted period of general prosperity. However, to maintain this, having in mind the unsettled conditions in Europe, it is essential that we all conduct our affairs with prudence, as we know what happened during the sudden unheaval in 1914, and the sudden reaction in business in 1920.

* President, American Cotton Manufacturers' Association, Mt. Holly, N. C.

Moderately Optimistic

By *Joseph H. Zens**

THE year 1923 will be accompanied by many of the conditions of other years since the war, with, perhaps, a stronger trend toward stabilization.

Economically analyzed, I view the present condition and the previous hectic conditions of 1920, 1921 and 1922 from the viewpoint of a man who throws a large boulder into the center of a lake. As this boulder splashes, several small waves are created on the surface of the water, as well as several lines of smoothness.

This has happened with the war—that being the first big "splash," and the large waves of prosperity just the opposite of the "splash." Following that, we have the smaller waves which represent the hectic peaks of each year, and the level spots representing the final placing of business on a sounder and better basis.

Now, my thought in reference to the year of 1923 is this: I believe there was a slight amount of overbuying in the latter part of 1922, which will cause a slight cessation in the spring of this year. I believe this will be borne out by the economic markets and stock markets. I look for April to be the end of any "bull" movement in stock prices. I also look forward to a break in cotton between now and August 1. However, before this break starts, I believe the present level of cotton prices will pass the present market.

American manufacturers have a marvelous ability to assimilate both the good and bad, and I believe the end of the year should bring us back to a more level and even current of the flow of production and sales than we have had for some time.

Of course, it is only natural that I am extremely optimistic regarding hosiery. I personally follow an economic trend that I believe is individual in this respect by watching most carefully the sales of men's hosiery as compared with women's, and my experience has been that, when the factories are producing to their capacity on women's hosiery, times are not prosperous; while, when my normal production of men's hose reaches its peak, I feel that, economically, things have become better and brighter.

Whenever I am confronted with a story of gloom from other manufacturers, or men in other lines of business, I cannot help but visualize the thousands of children born each year who must be clothed with the product of our industry.

I am absolutely opposed to the ac-

* President, National Association of Hosiery and Underwear Manufacturers.

cumulation of large stocks in our industry for this year in anticipation of any boom that may be conceived in the minds of the over-optimistic, for large stocks, when not moved, invariably produce a depressing effect, both upon the retailer and the jobber, as well as causing a great deal of unrest.

To sum up, I look for a good year in business to those who are guided wisely and by a study of general conditions, and not by signs on desks such as "Do It Now"; or—"Make This a Good Week."

Improvement in Underwear

By *L. U. Lynt* *

THE knit underwear industry is facing the New Year with a feeling of optimism.

With improvement in business in general, fuller employment of labor, prospects for the farmer brighter, all meaning increased purchasing power, and the small underwear carry-over by jobbers and retailers, manufacturers of knitted underwear are looking for a much improved demand for their product throughout 1923, and initial fall orders support this view as they show an encouraging increase in volume over those of 1922.

Quotations were made attractive as due to resistance to price advances on the part of the buyers, and keen competition among manufacturers to secure early business, opening prices were considerably below the cost of replacement. The advances over last year when made were merely nominal which would indicate that the first few months' operations will show a narrow margin of profit if any.

However, this situation with continued demand must correct itself and later months will probably see prices for knitted underwear closely in line with manufacturing costs and the markets for material.

* President Associated Knit Underwear Manufacturers of America.

Optimism in Worsted Yarns

By *Stanley R. Stager**

AS the United States has practically no export trade in wool manufactures, the outlook for 1923 in the worsted and woolen spinning industry can be measured only by an estimate of our productive capacity as against domestic demands, gauged by economic and political influences affecting such demands and the purchasing power to buy.

With the country's finances in excellent condition and capital procurable for every sound enterprise, labor fully employed, an encouraging increase in valuation of farm products, stocks of merchandise at a low mark, and a firm raw wool market—it is not difficult to view the outlook for 1923 with optimism. Spinners, however, do not expect a boom, but are moving cautiously, avoiding long-term contracts, and discouraging all elements of speculation in both buying and selling wherever possible, believing that with conservative trading the demand will continue in fair volume, and at sound but profitable prices throughout the year.

* President National Association of Worsted and Woolen Spinners.

Blanket Outlook Brighter

By *J. E. Edgerton**

THE outlook for the blanket branch of the textile industry is much brighter at the beginning of this season than it has been at any other time since the World War. Wool and other of the principal raw materials used in the manufacture of bed blankets have advanced sharply above the prevailing prices at the opening of last season, and there have been substantial advances in the sales price of the finished products. But, on the whole, the advance in the finished product has been materially less than in raw materials. This means, of course, smaller margins and a greater necessity for economical operation and larger individual production.

For the first time since deflation set in after the war, jobbers and merchants are breaking away from the "hand to mouth" policy and are buying more freely and with more confidence. It appears that for the most part the plethora of cheap blankets unloaded upon the market by the Government during the past four years and by manufacturers who had large accumulations on their hands resulting from the arbitrary cancellations of contracts by merchants in 1920 when the market was declining and from operations while there was no market, has been cleaned up. The blanket market is, therefore, in an unusually healthy condition and strong.

Blanket Mill Increase

Another feature of the blanket business which is noteworthy is the extraordinary increase within the past few years in the number of blanket mills. This increase began during the war days when there was an expanded demand and a restricted supply and when the price of anything was not a matter of consideration to consumers unless it were small. In that case, the article was rejected as cheap and undesirable. The various allied governments, too, were needing millions of blankets and were willing to pay high prices for them. As a consequence, new factories were built, machinery in other textile plants was diverted to the making of blankets, and old buildings were drafted for service as shelters for quickly assembled blanket machinery. There has been an increase of perhaps more than one hundred per cent. in blanket production in America within the past five years. The intensified competition resulting from this expansion of supply has made the blanket business much more interesting. Not only have the margins of profit become much smaller, but better blankets are being made and there is more of a premium upon efficient management and unit production.

While, therefore, it is becoming more and more difficult to succeed in the blanket business as it is in everything else, incentives are stronger, conditions healthier, and optimism more pronounced.

* President of National Association of Manufacturers and of Lebanon (Tenn.) Woolen Mills.

Knitted Outerwear Progress Large

By *A. S. Waitzfelder**

AS regards the 1923 outlook for knitted outerwear, this industry includes a large number of products made from a variety of raw materials, so that in viewing the outlook, it is necessary to consider same from the standpoint of the various yarns used, as well as from the standpoint of the various products manufactured by this industry.

The principal raw materials used in the manufacture of the various products of knitted outerwear are silk artificial silk, mohair, worsted, wool, alpaca, camel's hair, and various similar yarns of that character, as well as cotton yarns.

All of these raw materials, with the exception of artificial silk yarns, are considerably higher in price today than they were during the past year, and prices of knitted outerwear made therefrom, at today's selling prices, do not fully reflect these advanced prices, due partly to the fact that many mills still base their selling prices on the lower cost of such of these yarns as were previously purchased, and some of which they still have on hand.

It is therefore reasonable to assume that the manufacturers of various articles of knitted outerwear made from these various yarns, will soon be compelled to advance their prices to a parity with the current prices of the yarns.

Developments to Continue

As regards the outlook for the various articles of knitted outerwear, if the recent past can be taken as any criterion for the future, it can be assumed that the vast strides made by this industry will not only be continued but will become cumulatively greater.

Due to the extensive publicity campaign, which is being carried on by this industry, through the National Knitted Outerwear Association, the trade, as well as the consuming public, are fast becoming acquainted with the advantages of knitted outerwear from the standpoint of durable wearing qualities, as well as comfort, economy and beauty.

Among the principal articles of knitted outerwear may be mentioned the following:

Knitted fabrics made from artificial silk, as well as from worsted and woolen yarns; sweaters and scarfs for men, women and children; knitted dresses and knitted capes for women; knitted articles of all descriptions for infants' wear; knitted caps and knitted gloves; men's knitted neckwear and mufflers, and bathing suits.

In the last decade the sales of knitted outerwear have increased over twenty fold and in view of the strenuous efforts which are being made throughout the National Association to improve and standardize the qualities and the diligence with which the designers of the industry are constantly producing the new ideas and new models, there is every reason for assuming that the growth of this industry will continue at the same or even at a greater rate in the near future.

* President, National Knitted Outerwear Association.

Future Price Problem

By *C. A. Root**

AT the present writing the outlook for at least four to six months of 1923 is very promising. There seems to be a shortage of merchandise and buyers are very willing to place orders for future deliveries, and I believe that if prices can be kept within reasonable limits we should experience a prosperous year. However, if we have to experience wage advances and further advances in raw material, I believe we will find it a difficult time later in the year to do business.

I think that every effort should be made by the manufacturer, the manufacturing clothiers and retailers to see that the people get clothing at the very lowest possible price, as large elements of our population have had a very difficult time in this readjustment period, and everything possible should be done to keep the spread between the raw material and the finished product as low as it can be.

* President Manufacturers Textile Association.

Financial Opinions Regarding Textile Conditions

Bankers' Forecasts of the Future Typify a Conservative Attitude Respecting Possible Developments of an International Character and Their Possible Bearing Upon the Situation During the Second Half of Year —Opinions as to Immediate Future Generally Hopeful

IN the final analysis much of the success of any industry is dependent upon the attitude of the banking fraternity toward that industry. Financial interests may make or mar the success of manufacturing operations, according to their belief or lack of belief in the soundness of conditions and in the prospects for profitable business in the future. Therefore the statements of bank officials whose connection with financial institutions that have greater or less interest in the textile industry form an integral part of a forecast regarding conditions in this industry.

These statements amplify as well as fortify the opinions of manufacturers which appear elsewhere and while, as is natural with this class, possibly greater conservatism is to be noted in opinions respecting the future, it is salutary to note the expressions regarding the possible lions in the way which must be met and whose ferocity may be greater in imagination than in actual combat. This class of financial leader is likewise optimistic about 1923, but with an international viewpoint recognizes the complications which may be in evidence and may possibly affect the latter part of the year. Their thought as to the immediate future, however, is universally optimistic. Bankers' opinions follow:

Outlook and Review

By *Francis H. Sisson**

TRADE and finance in the United States at the beginning of 1922 were still under the shadow of the marked depression of 1921, when crashing prices, greatly reduced export trade, difficult and costly business readjustments, and widespread unemployment had characterized an extremely trying period. It may be recalled that the peak of the boom period following the war was reached in May, 1920, and the low point in the succeeding collapse of trade and industry came in the summer and fall of 1921. It is striking evidence of the great resilience of this nation that, in spite of the seriously adverse influences which persisted in 1922, the closing months of the year disclosed a situation in general very materially improved, as compared with conditions twelve months prior.

Since the beginning of 1922 the general level of prices has been advancing and the volume of industrial output has been increasing. Between June, 1921, and June, 1922, production in basic industries increased 24 per cent., and the volume of business, as measured by bank debits, expanded 19 per cent. There has been marked improvement in the iron and steel industry, which is now employed at about 80 per cent. of capacity. All of the textile industries are now very active and the automobile manufacturers have had a very prosperous year. Unemployment throughout the country has ceased to be a serious problem; in fact, there is a marked shortage of common labor. The high-water mark in car loadings has been reached. The year has been a very active one in building operations, and this activity has been clearly reflected in the many industries which are called up for construction materials.

The recovery from the depressed conditions of 1921 has been maintained steadily during 1922, in spite of the seriously retarding influence of industrial strife, notably the wage struggle in the coal industry, in which for six months the unionized miners were idle, while the disastrous strike of the shop employes of the railroads also added its burdens to the year's economic problem. The direct and indirect losses which were inflicted upon the nation by these strikes cannot be estimated accurately, but they undoubtedly amounted to many hundreds of millions of dollars.

Wages and Prices

A disturbing characteristic of the period of readjustment through which the country has passed during the last eighteen months is the inequality of the reductions which have taken place in wages and prices, inequalities which still persist and create a constant strain on the economic organization of the nation. While wages in many industries have been reduced, the coal miners have thus far succeeded in retaining the war-time scale. The same is true of the cotton textile workers and, to a great extent, of those employed by the railroads. High labor costs for fuel and transportation have their direct reflection in enhanced costs of production in all industries and in the heightened cost of living for every class. They also have their direct influence upon foreign trade by weakening our ability to compete in overseas markets. These conditions have weighed with special burden upon the agricultural classes, as the fall in the prices of farm products has been considerably greater than the average reduction of prices of all commodities, while transportation and the cost of many of the things which the farmer must buy still remain at a high level.

The difficulties of the farming class have led to political agitation for his relief and there has been formed in Congress a definite agricultural bloc which proposes to institute special financial legislation in aid of the agricultural interests. There has, however, been a considerable improvement in the position of the farmers. The value of twelve leading crops for the year is estimated at $5,980,000,000, as compared with $4,705,000,000 a year ago. This improvement may tend to modify some of the radical proposals which have been brought forward for the extension of credit to farmers.

The cotton farmer has been especially fortunate in the current year, as the price of his staple, which was 16½ cents in January, has risen to above 25 cents. A crop of ten million bales sold at this price level would bring a return of more than a billion and a quarter dollars to the South and notably restore the purchasing power of that part of the country, as well as clear away an accumulation of debts. The cotton textile industries which were among the first to feel the effects of the depression have also been the first to recover. They are operating close to capacity and the 495,344 bales consumed in September made the largest figure for that month in any year since 1917. The general level of prices of cotton goods has not varied materially from that of a year ago.

The financial situation during the year has been satisfactory. The trend of prices of stocks and bonds was steadily upward for the first nine months of the year, and the recent recessions have not been interpreted as presaging a continuing fall in price levels. The Government has conducted its first refunding operation with marked success, and has continued its determined efforts to reduce expenditures. A noteworthy characteristic of the present financial situation in the United States is the unusual total of gold held in the country, estimated at nearly $3,900,000,000, an increase of about eighteen hundred millions since August 1, 1914.

Foreign Trade Maintained

The foreign trade of the United States has held up remarkably well during the year considering the many handicaps which have existed. Despite the depression of European countries, exports to those markets have been fairly well maintained and in some way methods have been found to finance this trade. A considerable volume of foreign investment has no doubt been a factor in supporting this commerce. The slump in export trade which occurred in the first half of 1921 was arrested in the early summer of that year and since that time the value of shipments abroad has fallen below $300,000,000 a month only during the period from November, 1921, to February, 1922, inclusive. Cotton and grain have been the chief items in export, but in recent months an improvement has been noted in sales abroad of manufactured articles. On September 21 the new McCumber-Fordney tariff went into effect. This legislation can scarcely fail to affect our international trade adversely, although there is not as yet a clear indication of this result.

The record of American shipping has been less satisfactory. Freight rates have fallen heavily. The operations of the United States Shipping Board still show heavy deficits, and an effort is being made to solve the difficulties of the situation by subsidy, for which legislation is now pending in Congress.

After a year of bountiful crops, improving prices and increasing industrial activity, the outlook for the future may be considered distinctly favorable. In any event, the definite basis for continued prosperity now exists, although it must be admitted that the road ahead is by no means free from obscurities and obstructions.

A well sustained volume of foreign trade, for example, is an important element in a satisfactory economic situation in the United States, and there is ample cause for apprehension over the present financial and economic difficulties in Europe, for which a solution is still to be found. A serious reaction would certainly result in America if the great Continental markets were thrown into further disorganization.

Financial Outlook Good

The financial outlook is excellent and gives assurance of ability to support any sound development of business that may be desired. Through the President's veto of the soldiers' bonus bill the nation has for the time being escaped the enormous financial burden which would have been imposed by that legislation, but the effort to secure a blanket distribution of public funds to the soldiers of the late war will undoubtedly be continued and, if successful, would constitute a serious check to hoped-for

*Vice-President Guaranty Trust Co. of New York.

reduction of taxation and amortization of the national debt.

The labor situation also is fraught with obvious danger to the balanced and orderly readjustment of the economic structure. The restriction of immigration has strengthened the strategical position of organized labor.

President Harding has recently declared that the nation is "solvent financially, sound economically, unrivaled in genius, unexcelled in industry, resolute in determination and unwavering in faith." If the basic economic and financial factors can be wisely protected and these human qualities can be assured free play, there need be no interruption to the continued progress of the United States towards prosperity. It would be folly, however, not to recognize that such protection and freedom can by no means be taken for granted, but demand an intelligent initiative and a sustained courage on the part of the leaders and majority of the people if they are to be assured. The problems in industry, finance and international relations which confront the nation are many and difficult and will severely test its capacity to manage its affairs with wisdom. There is evident a tendency to experiment with theories of finance and administration which have been often discredited by past experience, and unless this tendency can be controlled our present fortunate position may be seriously compromised.

The favorable features in the present situation in the United States, however, would seem definitely to outweigh the unfavorable ones, and there is reason to entertain a sane optimism in regard to the prospect of excellent business conditions for the first six months of 1923 at least, and if the possible difficulties to which reference has been made can be successfully evaded or overcome, the coming year should place the nation in a stronger economic and financial position than ever before. Its situation may be deemed favorable indeed when compared with that of most other great countries in the world today, where far heavier burdens exist and far more harassing and critical problems now confront their people.

Conditions in U. S. Healthy

By *George E. Roberts**

A GREAT recovery has taken place in the past year. The most important feature of it has been the improvement in the prices of agricultural products, tending to restore the normal relationship between these and the products of the other industries. The final estimate by the Department of Agriculture upon the value of the crops of 1922 gives them as $1,800,000,000 over the value for the year 1921. This means so much additional purchasing power to be expended among the other industries, and they are all feeling the benefit of it.

The year ended with the best holiday trade on record and with practically full employment for the available labor supply. The tendency to higher wages and prices shows that the slack has been taken up and this means that the situation is nearly as good as it can be. Some readjustments may be desirable, but when the industries are operating at capacity or to the limit of their labor supply they can do no more, except as methods may be improved. Moreover, when they have reached that stage, there is danger that additional pressure will start a cycle of rising wages and prices, always unhealthful and temporary. After every period of either depression or activity business is likely to swing past the point of balance in the other direction. This should be avoided as far as possible. What is wanted is stability, permanent employment, regular wages, and steady prices.

Outlook Excellent

Aside from the threat of inflation, and with a reservation as to European conditions, the outlook for 1923 is excellent. The principal industries have all the business in sight they need to have to make a prosperous year; the only question is whether it will remain in sight if industrial costs move higher. The margin of profit upon which employers are working, however, is very small. In most of the industries goods cannot be sold today on a replacement basis. Such profits as there are result from making up materials bought at lower prices than are now prevailing. This is so because certain industrial costs have been maintained at a high level after the buying power of a portion of the consuming public has been reduced. Under such conditions every increase in costs must be passed on to consumers, who for the most part are the wage-earners themselves, and the farmers.

Relations of Labor and Capital

This attitude on the part of the wage-workers is due to the common habit of thinking of wages as wholly a matter between employer and employe, and that the higher wages are fixed the better for the employe. Neither assumption is correct, viewing the interests of labor as a whole. When it is known that wages, prices, consumption and employment are all closely related, the fallacy of this idea will be seen. If the compensation of all groups could be raised together, nobody would be benefited, and on the other hand if compensation is raised in a few industries alone, the effect will be to curtail employment in those industries.

The upward tendency of wages and the prospect of another coal strike are features of the 1923 situation prompting the business man to operate with caution.

Secretary Wallace, of the Department of Agriculture, names "continued high freight rates and maintenance of industrial wages at near war-time levels" as among the causes of present agricultural distress. On the other hand, Secretary Davis, of the Department of Labor, congratulates organized labor upon its success in defeating the attempts to reduce wages.

Course of Wages

The workers in the textile industries outside of the Southern states have taken only one general reduction from the top wages of the boom period, of 22½ per cent. in December, 1920. They are now moving for its recovery. The average hourly wages of all labor in twenty-three leading industries covered by the investigations of the National Industrial Conference Board were 108 per cent. higher in September, 1922, than in July, 1914.

On the other hand, the farmers took an almost perpendicular reduction, averaging about 50 per cent. from the top level of 1920, from which they have recovered about 17 per cent., and the average purchasing power of the principal farm products in October, 1922, was only 65 per cent. of what it was in 1913.

For organized labor to demand the re-establishment of the highest wages of the boom period while buying farm products upon the present level will be an effort to perpetuate an unfair advantage and deprive the farmer of the moderate gain he has made in the past year.

European Settlement Needed

By *Percy H. Johnston**

IT is beyond the ability of any man to forecast what the year 1923 holds in store for the American business man. America is sound to the core; the large majority of our people believe in the constitution and in property rights. The feeling of unrest that followed the World War and its dreadful consequences is not unnatural and is another evidence of history repeating itself.

It is futile for us to look for the return of full prosperity in America until we have taken the lead in the re-establishment of war-torn Europe on a sound economic basis. We have business men in any number of our great cities capable of taking a leading part with European business men in a round-table creditors' conference, where, stripped of politics and diplomacy, a settlement could be reached—a settlement that would be within the ability of all to meet. This is what will eventually have to be done—the sooner the better, and the more quickly it is accomplished, just so much earlier will the world once again start on its upward journey.

We in America have never lacked courage to tackle the job. I do not believe we will fail to undertake this one when once our people understand the true situation.

Profitable Period for Textiles

By *W. E. Lake**

FROM personal observation, and principally through personal conversation with a number of textile people, and the study of conditions surrounding individual concerns with whom we are doing business, the conclusion which I have reached regarding the textile industry for 1923, is that it should be, on the whole, and barring any unforeseen upheaval, a very profitable period.

This opinion is reached, not only through talking with and studying cases in one particular part of the country, but New England and representative sections of the South as well.

The only unfavorable symptom which I have been able to observe is the fact that prices in the jobbing trade have advanced to a very marked degree, and quite rapidly, and this in my mind is an unhealthy condition, as later on it may be the cause of a reaction which may bring about losses and consequent deadening of trade.

Looking Ahead Hopefully

By *Nathan S. Jonas**

THE year just closed witnessed substantial general business recovery. The Department of Commerce reports an increase of about 50 per cent. in the production of manufactured commodities over the previous year, textile mills' output increasing about 20 per cent., which compares with increases in output of steel mills, of 70 per cent.; of petroleum, 15 per cent.; of rubber, 40 per cent.; of automobiles and of building construction, 50 per cent. each; in leather the increase was 20 per cent.; sugar, 45 per cent., and in brick, 50 per cent. Previous liquidation was thorough, and stocks of merchandise were well cleaned up—a situation

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* President, Manufacturers' Trust Co., New York.

which has contributed materially to the subsequent recovery.

It seems to me that all persons who are in any way interested in the textile industry have reason to be pleased with the improvement that has taken place in the industry since last year, when serious disturbances impended, especially in connection with labor matters.

Increases in the prices of raw materials in the past year have been substantial, although prices for the articles manufactured from those raw materials have not correspondingly advanced.

Strong Technical Position

All textiles are in strong technical positions and for the time being labor troubles are in the past. Industry generally is active and the most reliable indications point to a very satisfactory business in the industry for at least the first part of the present year.

A forecast of probable developments in the industry, however, must give due consideration to the fundamental factors of raw material prices, the buying power of consumers, and the volume of production.

In the cotton field there is a very satisfactory outlook for the next four months. After the spring business, however, merchants will probably prefer to work "close" to their requirements, having their stocks low and their commitments light, so that a quiet time in this line may be expected during the summer months.

The governor of the Federal Reserve bank of Atlanta, Ga., is authority for the statement that there has been an advance in the value of the southern crop of cotton, of approximately one billion dollars, which has placed the southern farmer on his feet, after two years of struggle against adverse business conditions. Prices for wool are also firm. Owing to special conditions that prevail in the silk market, by reason of the "Syndicate" control, prices of silk do not as closely depend on supply and demand as those for the other commodities. Silk prices can never be said accurately to reflect actual supply and demand, on account of this element of uncertainty.

High Cost of Production

The potential purchasing power of consumers might warrant us in looking for continued firm demand. But we must remember that labor has not been deflated, a factor which, combined with the prices of raw materials, may mean production at costs that may make prohibitive selling prices, so far as the consumer is concerned. And so, while there is good reason for optimism regarding the first part of the year, there is much room for doubt regarding the later months.

The present high prices of raw materials are not reflected in present prices of finished goods, and it should therefore be a subject for serious reflection, as to whether future probable increases will still be within the buying power of the public; for if they are not, then another buyers' strike would be the result.

Nevertheless, the farmer has been paying for the articles he used, prices altogether disproportionate to those he has received for his own products. The improvement in the farmer's situation, however, continues although his prices are still out of line with those of the manufactured goods he needs. His buying power is correspondingly diminished and for this reason we may not be able to count on a normal power of consumption in the agricultural sections.

Therefore, unless there is an early clearing in the foreign situation it would not be surprising if a period of severe reaction resulted. If we remember that only about 85 per cent. of our production in this country can be domestically consumed, and that the remaining 15 per cent., constituting surplus, and representing profit *must have export outlet,* since profitable production depends absolutely upon the advantageous disposition of that 15 per cent., we will have a picture of the present possibilities. If the foreign situation clears up, we can get rid of this surplus, otherwise we are likely to find it on our hands—with an almost certain decline in prices.

If prices continue firm, the producers of agricultural products may be enabled to meet the higher prices, which will then obtain. Since labor unions are fighting not so much for increases today, as to maintain existing wage rates, the factor of domestic consumption is likely to remain constant, and the principal relief to be expected, if at all, is the foreign absorption of the 15 per cent. surplus, to which reference has been made. Of course, definite moves might be made to restrict production, and thus artificially to maintain prices.

Uncertainty—Late in Year

The consumption of cotton mills in the last two months, has been above the pre-war average. In woolen and worsteds, consumption has also been high. In silks, however, it is very much below the average. Not more than 20 per cent. of the silk mills are active today, according to leading authorities. The past five months' average production in the mills has been about 70 per cent., or on a scale below which it is impossible to reduce production and do business on a profitable basis, for overhead remains practically the same, whether a mill is running 50 per cent. or 70 per cent. capacity.

Therefore, the period beyond the first five months of the year appears to me to be fraught with so much uncertainty and danger, that the greatest care should be observed; the outcome as stated depending largely on developments in foreign affairs.

The increases in the prices of agricultural products in the South and West have added approximately one billion and a half of dollars to the buying power of the public, as compared with 1921. That amount of money added to the farmers' potential buying power means that they can not only reduce loans but that they can and will buy a great volume of merchandise as well, despite the restriction to their buying power already mentioned.

The extent of the building revival assures employment to large numbers for at least four or five months. The steel industry, due largely to the automobile business, has a bright outlook. Plans for 1923 call for the production of many million new cars, one establishment alone planning to turn out 24,000 automobiles a day. Increased earning power has enabled the railroads to place orders for cars, which are reflected in the unfilled tonnage statement of the steel corporation. These developments, combined with increased potential buying power, will doubtless provide our industries with profitable occupation for at least a third and possibly, the entire first half of the present year.

Year Opens Favorably

By *John Bolinger**

NO prediction as to the possible development in the textile field could survey more than six months. Were we concerned with our own affairs alone, conditions would point to an exceptionally good year ahead. Even when discounting the doubtful factors, there remain sound reasons for optimism throughout the coming spring season. The snarl of European affairs must continue to be an important factor in the textile situation, both as regards cotton and wool. While at the moment the prospect is encouraging, there is, of course, to be considered that crop reports next spring may have a depressing effect.

Last year, there had been a general planning of cotton-growers for a good crop. Here in this country, hopes were blighted by the floods and the effect of the boll weevil. Early last year the mills recognized the possibility of a short crop. As a result of their action in backing their opinion at that time, they benefitted to a considerable extent. They also, both in the case of cotton and woolen manufacturers, derived benefit from the fact that the market generally was short of stocks of manufactured goods. The mills throughout the country had been profitably employed for practically the entire year, with the exception of those northern mills affected by strikes and labor disturbances.

The activity of the cotton textile industry has been almost at full capacity. In November it was operating 100 per cent. of spindle capacity. The consumption of raw cotton by mills during November amounted to 577,561 bales, this figure being the largest for consumption since November, 1917. There is also ahead of the mills a considerable volume of unfilled orders, with the additional advantage that stocks on hand of manufactured goods are generally small.

While consumption fell off in December, and manufactured stocks are at present slightly larger than one year ago, there is nothing to indicate, barring, of course, the European situation, that the position of the industry is not especially sound.

There has been some fear manifested at the reduction in carry-over and falling off in cotton production, not only here but abroad. It may be a fact that mills' stocks and other stocks of raw staple may be fairly considerable. Even were a great deal more raw cotton in sight, it would have to be the right grade in the right place to be of benefit. A New Bedford spinner's cotton requirements would not be helped by his knowing that the staple he needed was stored in Liverpool.

The cotton carry-over this year, 2,828,000 bales, is the lowest in seven years. The increase in domestic consumption and the growing demand abroad for our raw staple, considered in the light of this shrinkage in carry-over, suggests the possibility of a steady advance in price.

Regardless of whether one considers this question of carry-over, it must be borne in mind that it will all be needed during the two months which bridge the gap from season to season. During these two months, mills will be compelled to draw upon stocks that are now not regarded as any too high.

Exports of raw staple last year amounted to 6,316,000 bales or 500,000 bales more than the average for the last seven years. It has been estimated that domestic consumption will be 7,500,000 bales. The cotton crop last year, including linters, amounted to 10,410,000 bales. With the 1921 carry-over the total supply reached 15,300,000 bales. Should our present rate of consumption continue, and foreign demand increase, and should there be a repetition of last year's experience in the matter of short crop, there would be little chance for any carry-over a year from now.

This is not merely a matter which concerns us. World cotton consumption has been steadily climbing upon production during the past few years, and carry-over this year will be 3,000,000 bales less than it was a year ago. It may be, of course, that increased production in India, Egypt, and the United States will offset the estimated shrinkage in carry-over. Whether the increase will materialize or not is entirely beyond any prediction.

The situation outlined with regard to possible shortage is of course responsible to some extent for the up-

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Uses for Textiles in Manufacturing Industries

Surprising Yardage Employed by Manufacturers of Automobiles, Rubber, Paper, Cement, Meat and Milling Products, with the Universal Belief of Larger Consumption During the Year 1923—Opinions of Trade Paper Editors in the Various Industries

TOO often the consumption of textiles is thought of as confined to the dry goods and garment trades, forgetting the highly important aggregate which enters into other industries in connection with the manufacture or distribution of an entirely different product. This volume of merchandise enters into very different channels from the ordinary jobber-retailer avenues of trade and enlarges in a very important manner the uses of fabrics that are commonly regarded as requisites for clothing or household equipment.

The manufacturing uses of textiles involve certain of the most important industries of the country. Therefor conditions and prospects of the future in these industries have a very fundamental influence upon the prospects of success or failure in textile manufacture. With an idea of obtaining a word picture of the situation and outlook in certain of the more important industries where textiles are used, either in processes of manufacture or in the course of distribution, editors of TEXTILE WORLD have asked representative editors of trade journals covering these industries to prepare statements as to the prospect of business during 1923 and the probable consumption of textiles in their respective trades.

The symposium which follows embraces the views of editors in close touch with the automobile, rubber, paper, cement, meat and milling industries, and their pronouncements should be worthy of consideration by those members of the textile industry whose products enter into the various lines of commerce included.

Tire Fabric Outlook Good

By *Edward S. Babcox**

APPROXIMATELY 35,000,000 tires were produced and sold in the United States in 1922. Conservative estimates indicate that a minimum of 40,000,000 will be made and sold in 1923 and this may be taken to mean that 15 per cent more tire fabric will be required and used in 1923 over 1922.

About January 1 the long expected general increase in tire prices materialized. Increases range from 10 to 15 per cent, the average being about 12½ per cent. The reason for the increase is stated by representative manufacturers to be the higher cost of crude rubber, brought about by the British export tax and restriction plan.

It is estimated that this rubber restriction tax will cost American rubber manufacturers an extra $100,000,000 in 1923 and this excess must be absorbed by tire users, of course.

There has been considerable spot buying of fabric in recent months but with the general solidifying of business progress and with the consequent growing confidence in the future more contracts are being entered into. It looks as though the fabric business in the tire and rubber field for 1923 would be prosperous and profitable.

* Editor and publisher "India Rubber Review," Akron, O.

Increased Textiles in Milling Industry

By *C. M. Yager**

THE last census showed that there were over 10,000 merchant flour mills and more than 10,000 custom mills in the United States and that the capacity of these mills has grown very materially since the preceding census.

The great volume of textile business done by these mills is largely in cotton bags and burlap for the packing of their products. There is truly an enormous volume of textile materials consumed by the milling industry of the United States. In recent years the wooden barrel has steadily declined as a container for flour and this business has been absorbed universally by cotton and jute bags.

The output of these products amounts to some 134,000,000 bbls. of wheat flour, 14,000,000 bbls. of corn products, 2,575,000 bbls. of rye, in addition to which there were oatmeal, hominy and buckwheat products.

The total of 134,000,000 bbls. of wheat flour manufactured in the census year was largely shipped in various sized cotton bags, the standard size being 98 lbs. or one-half barrel.

The flour milling industry also uses a very large amount of silk bolting cloth, much of which is made up in this country from Swiss importations.

Quite naturally an industry of such magnitude as outlined above would consume in the aggregate a large amount of other textile goods of various character, but the sacks and bolting cloth are the principal textile items used. One special item that might be mentioned is a very large use of caps and coats used specially by the operative millers. Many mills have a great deal of material made up for that purpose for their own use.

There is a possibility that during the coming year there will be a big increase in the output of American mills. The year 1922 was not a normal year in the matter of production. The year 1923 promises a large output of mill products and an increase in the use of textiles.

* Editor "The Modern Miller."

More Sacks Needed for Cement

By *Dwight F. Jennings**

WITH their biggest year just closed, and prospects bright for 1923, the manufacturers of portland cement will require many millions of new sacks during the present year. Although various factors will affect the total number bought and the quantities of other materials used, such as jute and paper, the great majority will be of cotton cloth—osnaburg.

While many industries were operating on a very moderate basis, or were still slowly groping their way back to normal production, the portland cement industry in 1922 was setting new records both for production and shipments. According to figures furnished the United States Geological Survey, approximately 115,000,000 barrels of cement were shipped during the year—some 19 per cent more than ever before.

Despite this greatly increased demand for cement, the industry still has an enormous capacity in reserve. Last year was the first in the history of cement manufacture when as much as 75 per cent of its producing capacity was needed to supply the year's requirements. In 1920, the United States Geological Survey gave the estimated capacity of the country's mills at more than 146,000,000 barrels—a figure that since has probably been increased.

Since about 90 per cent of all portland cement is shipped in cloth sacks—four sacks to the barrel—over 410 million sacks must have gone out to every part of the country. The greatly diversified and rapidly growing list of uses for cement is responsible for this unprecedented demand. Especially the present activity in road and street construction and in home building has made itself felt in the market for cement. The continued efforts of the industry in research and education, looking toward the more economical and the more widespread use of cement, have borne fruit.

Cloth cement sacks are returnable to the manufacturer, but for various reasons about one in eight fails to come back, and must be replaced. In 1922, in order to maintain their usual stocks of sacks, the 87 cement companies in the United States needed nearly 50 million new ones.

A sack requires one yard of osnaburg 30 inches wide, usually of 7 ounce material. In terms of cloth, then, this total of 50 million sacks would use up a strip well over 28,000 miles in length—a belt around the world and from New York to San Francisco besides.

A detailed forecast of the 1923 demand for cement and cement sacks is of course impossible, as the amount of construction is uncertain, and each manufacturer keeps his own estimate of business to himself. But the volume of contemplated construction work involving the use of cement is known to be large.

* Editor "Concrete," Detroit, Mich.

Paper Textile Demand Normal

By *H. J. Berger**

THE paper industry during the latter months of 1922 showed a gratifying revival. So far as can be judged now the expansion in the demand for paper is likely to continue throughout the year and possibly for a much longer period.

This naturally means a heavy demand for all material used in the manufacture of paper, including textiles, of which paper manufacturers use enormous quantities. These textiles include principally paper makers' felts and comprise wet felts and dry felts. The former, strictly speaking, is not a felt at all, but really a woolen blanket and is the only material that can be successfully used for pressing the water from the sheet of paper.

* Editor "Paper Trade Journal," New York City.

Dryer felts are employed on the dry end of the machine and must be made of very hard and firm material like canvas or duck.

On the modern paper making machines, wet felts are made from forty to sixty feet in length, and as the most modern newsprint and wrapping paper Fourdrinier machines are in a few instances now operated at one thousand feet per minute, and are commonly run at six hundred and fifty to seven hundred feet per minute, it can be observed that the wet blanket made of delicate fibre cannot be long lived. As the felts cannot be expected to give satisfactory results unless they are in first-class condition and must be frequently discarded for new ones, it can be appreciated that the paper industry is a vast consumer of these fabrics.

Wet felts vary greatly with the variety of paper made. Tissue paper, for instance, requires very fine felts with practically no nap, while the large cylinder machines for making board, and the wet machines for running pulp, require heavy strong felts, yet in the case of the board felts they must be sufficiently fine to give the required smooth finish to the board.

The always important demand for textiles from the paper trade may almost certainly be expected to be satisfactory during the ensuing year and probably very much larger than during a number of years past. The demand for newsprint paper has been expanding marvelously since last February—peak production, in fact, has been registered each succeeding month since that time. Judging from the prosperity of the newspapers, and the great volume of the editions that are constantly being issued, 1923 will almost certainly be the best year in this section of the industry, which with the single exception of board, produced the largest tonnage of paper.

While other sections of the industry were slow to respond to better times, last fall saw a most encouraging improvement in all of them, and the New Year has been entered by the industry generally with a spirit of optimism that has hardly ever been equaled and which cannot fail to benefit greatly manufacturers in all industries from which the paper manufacturer buys materials.

Textile Fabrics for Meat Packing

By *F. N. Davis**

MANY textile fabrics are used in covering the various meat products, but there are one or two in particular that are used extensively; these are cheesecloth, burlap and stockinette bags.

Cheesecloth or burlap is used as a covering for whole, quarter or halves of beef, pork or sheep for export.

Domestic carlot shipments of beef, pork or sheep when shipped as a complete carcass or halves or quarters are usually covered with burlap or knit bags.

During 1922 there was produced over 16,000,000,000 pounds of meat—estimating that half of this product is shipped as whole, halves or quarters will give an idea of the great field for burlap, cheesecloth and knit bags as meat covering.

Stockinette bags are used for covering hams during the smoking process. This is not universal throughout the industry, but they are used by many of the packers throughout the country. During the year 1922 there were over 60,000,000 swine slaughtered, and there being two hams to each swine will give some idea as to the great possibility of the stockinette bag.

* Editor "The National Provisioner," Chicago.

America's Cotton Goods Export Trade

Manufacturers Should Work for Expansion of Foreign Business as a Logical Development

By *John S. Lawrence.**

AMONG the many reasons why American cotton goods should profitably find their way into foreign markets, three are conspicuous, viz:

1. The United States grows a large surplus of exportable cotton; certain processes in the refinement of this cotton are naturally performed within the United States, such as picking, ginning baling, etc., and why not other processes, such as cleaning, carding, spinning, weaving, dyeing or printing?

2. The United States spins more cotton than any other country. This year, the United States will spin over [illegible] in countries which locally produce one-third of the cotton grown in the world, and undoubtedly will produce certain fabrics of unique design or for special use which will be desired by foreign consumers.

3. The very large American home market has made possible larger and more efficient single purpose plants than those abroad. Such plants require continuous operation, through which they secure low cost and dependable service. Of course, the whole foreign demand cannot be supplied by plants employing mass production, but obviously a part of the foreign markets can be so organized, and a part of single purpose plants can be developed to meet their requirements.

Service is a very important requisite of the textile merchant, particularly of those handling seasonable goods, so I doubt whether American cotton goods can successfully conduce their own requirements, particularly when such countries adopt a protective policy through tariff, but I do believe that a part of the import purchases of countries not manufacturing their own needs can be supplied by America.

John S. Lawrence

Tariff and Export Trade

Foreigners often argue that America cannot adopt a high protective policy without at the same time losing her export business—that foreign trade means an exchange of commodities. True, America's protective policy is directed at the protection of those people and industries which would be injured by the dumping in America of manufactured goods similar to those produced in her essential industries. The tariff, however, is designed to encourage the import of those commodities not competitive with those vital to American prosperity, but desirable for the comfort and well-being of her people, such as raw materials, tropical products, etc.

Should imports be encouraged indiscriminately, manufacturing curtailment would increase costs at home which would eventually result in losing orders abroad, as well as diminishing the capacity for consumption by Americans, which would naturally slacken the demand for raw material and tropical imports, creating a vicious circle and utter stagnation of international trade. The world needs orders which without America's prosperity foreigners are unable to give.

The American protective policy is designed to encourage exports, particularly to those countries which do not themselves compete with our primary products, and it is in those countries that we find material which we want in exchange.

Comparative figures are not available to show what the textile industry contributed to the balancing of trade of the United States as compared with pre-war conditions. The importance of both textile imports and exports can best be appreciated when one learns that about one-quarter of the foreign trade of the United States is in textile fabrics and fibres. I believe the total values of American textile imports, that is of finished goods of silk, wool, cotton, etc., are today larger than the total value of textile exports, that is of goods, of raw cotton, etc., as compared with figures before the war.

Preliminary figures indicate that textile imports for the year 1922 will be more than $500,000,000 larger than those of 1913, and textile exports no larger than those of 1913, and that the industry is doing more than its share in balancing the United States exports and imports, thus justifying those supporters of the protective policy as well as those advocates of the development of a reasonable amount of export trade.

In short, I believe that cotton goods are logical export commodities; that Americans are quite capable of intelligently producing goods and merchandising them in foreign countries; that our exports can and will be made economically sound, and that the industry is not in error in organizing to operate under a protective tariff, and to expect as well a fair share of the world's foreign trade in cotton goods.

Note: Since this article was written figures furnished by the Department of Commerce indicate that the increase in textile imports of 1922 over 1913 will be nearer $750,000,000 than $500,000,000.

Favorable Business Expected

However, Improvement of Transportation Facilities Necessary —Public Sentiment Needed

By *John M. Miller**

IN our opinion, 1923 promises favorable business. It appears that we will avoid a coal strike this spring. Now, if we can further avoid an extra session of Congress this summer, and if the foreign situation will quiet down, undoubtedly 1923 will be the best year we have experienced for some time past.

However, we must have better transportation facilities. Our railroads have been starved long enough. The public must learn that the railroad business must be made profitable to stockholders and investors; otherwise capital will not be forthcoming for better facilities, for more trackage, more rolling stock and more terminals. Transportation is one of the main factors in prosperity.

* President, First National Bank of Richmond, Va.

Charting Course of Fabric Trends in Women's Wear

Movement in Exclusive Circles Foreshadows Turns in Popular Taste—Rodier's Qualities Have Gained Him Dominant Place—American Retailers Giving Him Strong Support—New Fabrics Now Shaping Style for Future—Rodier as Viewed by Piece Goods Buyer—Place of Staples

By *Hélène Volka**

THOSE influences which are most clearly discernible in the spring and summer fabric movements, are again largely, and logically, traceable to Rodier, as in recent seasons.

One reason for this now perfectly obvious direction of current taste in America is the fact that this master craftsman operates with equal success in the three divisions of fabric production—woolens, silks and cottons. Examination of the breadth and scope of this success fills the observer each season anew with amazement.

A most interesting phase of Rodier's equipment as a designer is his clear discernment of the value of the human interest quality in document derivation design. He also employs the elements of contrast and surprise in his frequently dramatic use of color, texture and motif, while a sense of humor is not the least of his assets. Apart from these tendencies, he has employed unique promotion measures for his most "advanced" designs, which, until recently, have been created for the exclusive consumer of cultivated taste in these matters. Skilfully contrived *repetitive* design has, however, slowly broken down these social barriers and greatly extended their appeal. Here is a method which we, in America, with our reckless haste in withdrawing many admirably conceived and executed productions because of a slow-moving acceptance could study with profit.

* Fashion Service Department, Botany Worsted Mills, New York.

Repetition Brings Acceptance

As a typical instance of such methods of patient propaganda in behalf of a pattern in which Rodier discerns exceptional style significance, such a novelty may first be offered in one of the luxurious woolens as a striking fall production. It is presented, in slightly differing technique, as a silk feature for the following spring season, coincident with its appearance in the de luxe cottons. It may also move from classification as a woven pattern to an embroidered motif, or the reverse.

If the style momentum is slow to assert itself with the international buyer, after marked approval has been obtained from the Haute Couture, it is again brought out for the following season with interesting variations in color or line treatment. "Vagues Cloquellor" has passed through practically all of these windings to an exceptional design success. It is this almost incredible artistic and technical resourcefulness, combined with an astute common-sense, which Rodier contributes to the fashion-fabric field. Their accredited results are such that today fabric interest bids fair to reign supreme, indefinitely, in the realm of fashion technique. In other words, the "average" consumer is being taught to study fabric as the hall-mark of fashion.

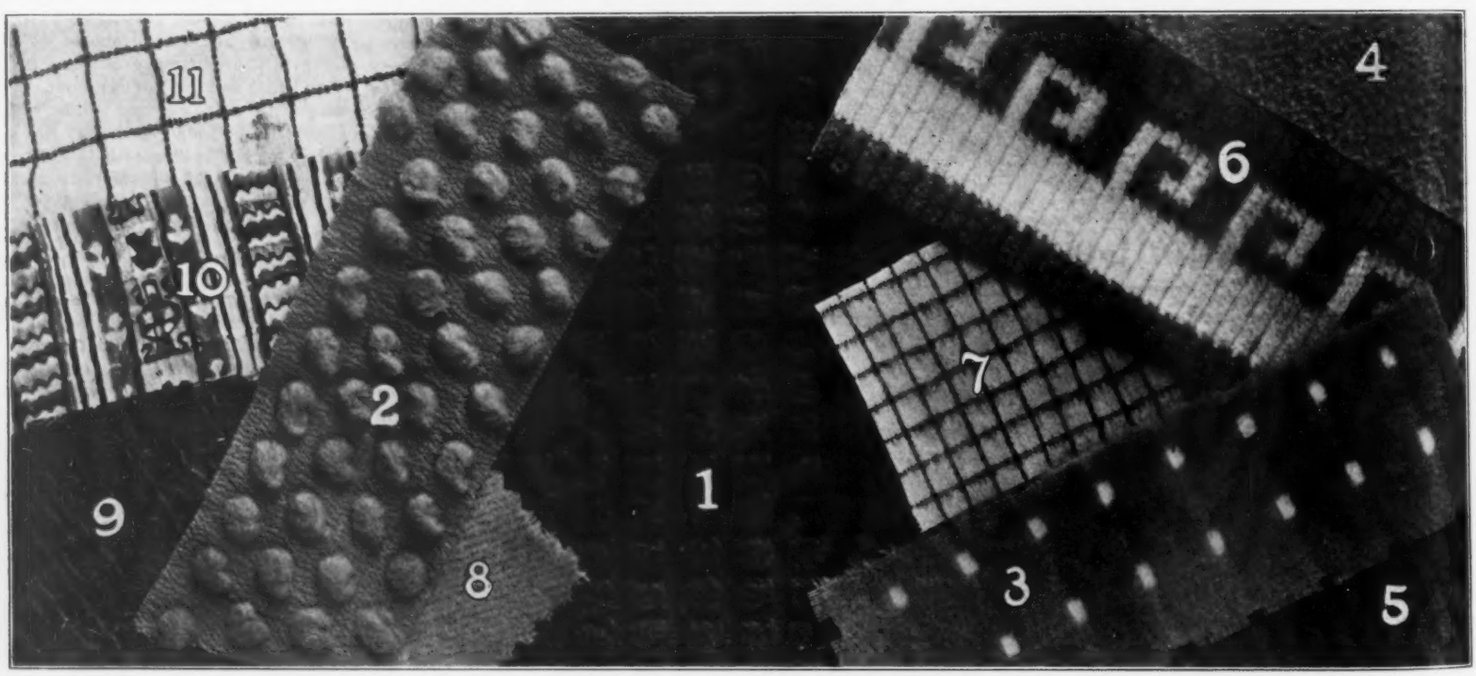
Stressing Rodier to Consumer

As witness to this remarkable change of base in merchandising methods, came the advertisement of Jan. 7, by Best & Co., retailers, New York. In announcing their Southern Resort opening, a five column spread was headed by the single word, "Rodier." A single figure was utilized as illustration of a new material for the jacquette. The listing of the featured fabrics of the opening collection of dresses, gowns and suits occupied marginal space, while a brief statement as to the new silhouettes conveyed the impression that the Rodier looms supplied the basic style interest for the new season.

Apart from last year's press development of matelassé, and Bonwit Teller & Co's. striking fall and winter exploitation of the vogue of velvet, as the outstanding fabric influences throughout the realm of dress, nothing has approached the Best & Co's. recognition of the new fabric movement as of far-reaching merchandising importance.

Fabrics Accepted for Spring

Among the woolens listed in the Best announcement were Vellina, Perllaine and Raillaine. Vellina, a brushed wool sports coating, has been accepted for four successive spring seasons in France, where it is now listed among the staples. Brushed woolens, like the fleeces, are regarded as popular rather than exclusive features in America. Vellina, however, has the merit of extreme lightness in weight and an exceptional color chart. Its style persistence in France now places it before the American woman on a fresh basis. Moreover, its influence is to a certain extent responsible for a new sports fabric which presents the wool of the face nearly an inch in length. Perllaine, under prolonged promotion in America, was originally a coating, but is now submitted as a light weight suiting and jacquette fabric in white and plain tone sports pastels; also, in



(Courtesy of Botany Fashion Service)

RODIER'S INFLUENTIAL GROUP IN AMERICA

1. Cube de Laine, a Deferred Success Which Made Possible a Quicker Recognition for 2, Known as Pompom Cloth. 3, Percelaine, or Punch Cloth, Scoring Heavily and Rivalling the Vogue of Perllaine, Which Is 4. 5 and 6, Are Plain and Novelty Versions of Raillaine. 7, Is a Novelty Drapella (a Broadcloth.) 8, Is Vellina. 9, Is Astrakella, an Early Version of "Puffed" Silk. 10 and 11 Are "Repeats" of 9, Printed and Embroidered De Luxe Cottons, Rezo Crepe. The Last Three Weaves Have Appeared Since the First of the Year in Woolens Under the Name Ullecla

practical soft tone plaids and blocks.

In various collections, Perllaine has also been featured among the embroidered novelties submitted for the jacquette, in bold figurations of black upon white, rose, or Lanvin green, or of brilliant shades upon white.

So effectual has been Raillaine in promoting a theory of superfine "wool corduroy," that it appears to move forward as a fall possibility in America, which is borne out by the acceptance at sight of the Raillaine Nacré for spring—a sports novelty of unusual appeal. This coating shows the original Raillaine wool stripe in sports pastel colors, with artificial silk in self-tone introducing a frosty glaze, or "mother-of-pearl" finish, in apricot, hydrangea blue and almond green, this attractive fabric was quickly appropriated by exclusive houses of ready-to-wear for summer sports usage, although the winter version in dark shades minus the silk had had only feeble response.

Piece Goods Buyer's Verdict

James Ryan, piece goods buyer for Wanamaker's, and who is credited with having been the first in his field to introduce Kasha, has consistently maintained a policy of acquainting the consumer with the detailed style values of the Rodier collections featured by his department the year round. He reports their eager acceptance by the dressmaking houses and by the alert consumer to such an extent that certain productions have been closed out within a few days after their initial presentation. This buyer has also upheld the French faith in napped textures as of protracted interest when offered in novel treatments, and supports the plaid and checked velours. Among the first to recognize in Percelaine, the drop-stitch velours, a style feature of importance, this cloth was presented in his early fall collection.

Victor A. Pincus, manager for the importing house of Villa-Zigmund, stated in December that he regarded Percelaine, also known as Punch-Cloth, as a coating of the most interesting construction shown in years. The "drop-stitch," by means of which a tiny open square is formed at intervals of one inch, is sufficient to reveal a glow of color, should a contrasted lining be used. Mr. Pincus reported the interest of buyers as immediate, copies of a striking coat by Jenny selling at sight. The statement is of particular significance in view of the fact that this coating has been under promotion in America without apparent result for over a year, in the garment production field.

Adventures of "Block Movement"

A story unique in the annals of coatings is that of Cube de Laine, now mounting the crest of deferred success after insistent promotion. This interestingly constructed block pile fabric was, upon its original presentation, regarded as too extreme in style, difficult to manipulate and, altogether, a freakish production entirely outside the practical demands of the American ready-to-wear field.

The larger department stores, notably Wanamaker's and Stern Bros., obtained a certain recognition for it, during the fall and winter of 1922, with the consumer, but it remained for Jules Ciechanow, importer, to justify his faith in its practicality and style influence as a sports feature for the Palm Beach and spring trade by rechristening it from Agnella Briqté to Cube de Laine, for America. His Palm Beach showing of wraps, capes and sports jacquettes interpreted the innovation so successfully that it now bids fair to achieve the outstanding coating success of the year.

Incidentally, the arresting cube which broke up the face of this pile fabric appears to have induced along with other tendencies to block or plaid-square a surface, a decided impulsion toward the utilization of this decorative figuration. In each of the fabric divisions, there may be found the hollow square, the domino block, the use of cross lines in contrasted or self color, which bespeak the interest in this theory of design. Apart from coatings, suitings and dress fabrics in woolens, there are the printed crepes and silks, notably wool-filled crepes, and quaint checked taffetas of marked color interest; also novel tissues in the luxurious cottons, such as two-tone checked organdies which were presented last year, but reappear in new combinations. Embroidered lines which form hollow squares in pronounced color are also found upon Rezo-crepe, now regarded as the outstanding American success of the Rodier cottons for 1923.

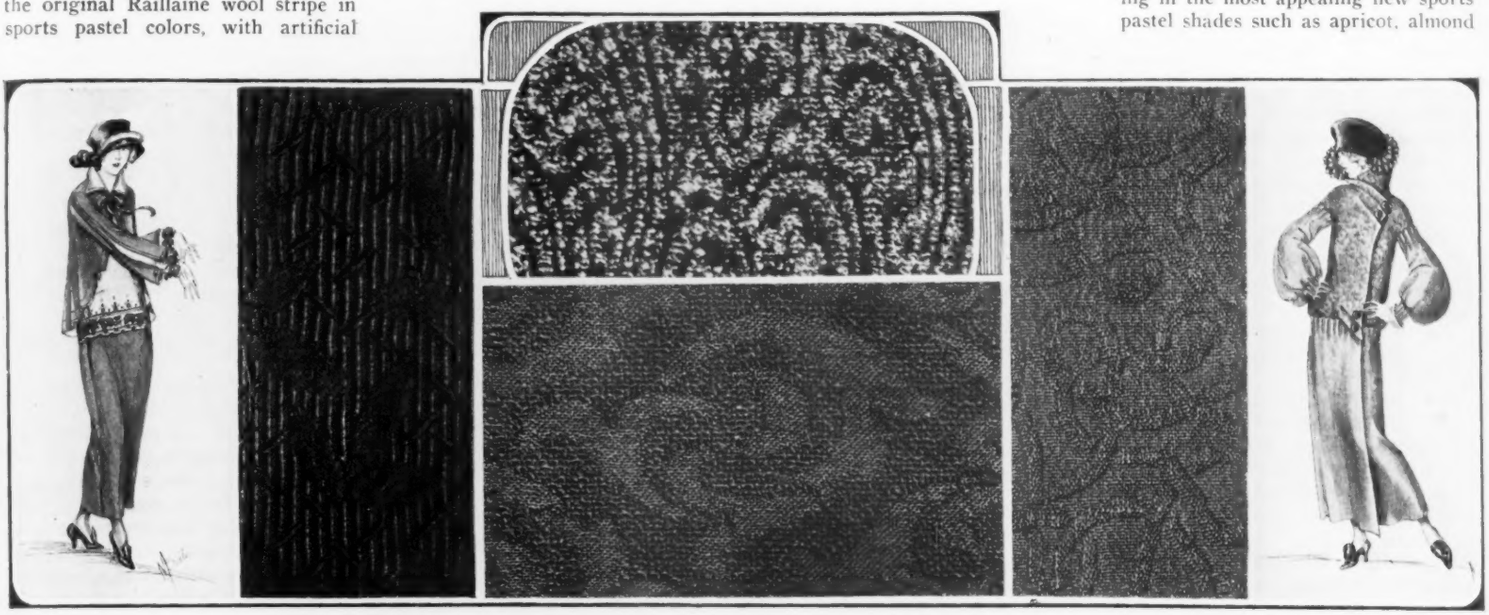
Following the Cube, the Disc?

That which may later prove equally influential in shaping a tendency to break up a surface into relief patterns as effectually as the ribbed, ridged and cubed novelties, appears as Pompom Cloth. This innovation presents upon a wool crepe base, a ball in high relief caught down in a way to puzzle the eye, as no visible means of attachment appears on the reverse side. This cloth, now under development by various exclusive coat and suit production houses in New York is already something of a sensation in the Avenue shops. The "ball motif" may, therefore serve to bring forward the disc, wafer and dot for fall (as the presentation of innumerable developments in the Rodier spring and summer collection would seem to indicate), as direct successor to the cube.

Cashmere Developments

Plain Kasha insistently presents itself for extended favor by reappearing in the most appealing new sports pastel shades such as apricot, almond green, geranium rose, hydrangea blue and jonquil yellow. In still softer shades, massed embroideries in wool form all-over patterns or deep borders in self-tone, with occasional accents of deeper color.

Apropos of this promotion of Kasha and numerous cashmere-face fabrics, Charles Kondazian, a manufacturer of exclusive high-grade gowns, suits and coats, bases his conception of its style maintenance upon its fine textural feel and predicts that its quality, which all cashmere stock traditionally upholds, will be discernable within fabric movements for some time to come. He showed plain-tone Kasha, of clear but restrained color, modified by Rodier's geometric stripings, running crosswise upon the fabric in soft camel color wools. At each selvage edge, these wool threads extended for about three inches in a twisted loop fringe. Here we have a particularly good definition of Rodier's understanding of promotion of an intrinsically valuable fabric which has been subjected to extended propaganda, for, by employing Arabic



Applied Motif—The widespread vogue of patterned fabric has also revived interest in that form of decoration known as applique, which has been neglected for years. The blouse waistcoat of this practical, fine navy reps suit, is of supple white glace leather, the pattern executed in applique vari-color leather motifs, as illustrated in the left-hand figure. (Courtesy Botany Fashion Service)

Wool Brocade Features of Botany Worsted Mills Spring Series—The designs adopted for these patterned fabrics include Acanthus (lower center), showing the classic acanthus scroll in lustrous relief upon a fine eponge base; Japanella (right), another high lustre scroll upon a wool crepe base, both "perfect reversible" cloths. Minabar (left), shows a pointed leaf of slightly blistered suggestion on a lustrous rib base. Brodelaine (upper center), introduces the artificial silk bouclette in relief upon a fine pattern of tapestry weave

Woven Pattern—Interest in the woven novelty is so far-reaching that it ranks above embroidery or any other decorative medium. This is a type of fabric ignored during the long continued popularity of the napped and pile fabrics. The Botany broché known as Acanthus is illustrated in the right-hand figure above in combination with matching plain fabric

motifs in the embroideries derived from the traditional camel driver's cloak, the human interest note again finds itself legitimately attained.

Mr. Kondazian is also among those style experts who express the belief that the working up of cashmere cloths into new weaves and decorative plaid and stripe developments will extend their vogue well into the fall and winter. Whether or not this is due to the great demand for soft cloths as the basis for the soft line tailored movement (and this is a movement) may only be surmised, but with the additional demand for soft colors the surmise is probably correct.

Much is also heard of the forthcoming development of plaids upon cloths with which they are seldom associated, such as reps, poplins and bengalines, for suits and dresses.

E. Meyer & Co., having scored a success with their "uncut velvet" developments upon a serge base in their beautifully conceived Brocade de Smyrne series of last fall, have precipitated a new appreciation for this conception of plaids as luxurious factors in dress. Plaids thus removed from their traditional place within the practical and utility group, move steadily upward. Rodier's rendition of plaid broadcloth also served these ancient patterns, which came into Britain upon the backs of Caesar's soldiers, with an impulsion upward, for both clan tartans and their futuristic interpretation will come forth for fall as fashion of the topmost Rodier mode.

The Place of Staples

During the era of novelties those staples which "build" well in relation to the patterned fabrics in vogue become an essential first choice. Within this classification in woolens come the ribbed textures, which include reps, faille, poplin and Bedford cord, now a base for most interesting elaborations by Rodier. Coverts, in both plain and novelty versions are already well under way; serge is under similar development. Wool crepes both plain and broche are strongly favored on both sides of the Atlantic. All that need be said of the twills is that they appear to hold their own.

The unfoldments of the cashmere cloths for a considerably extended usage over previous seasons gives them unquestioned style leadership. On this basis they are already announced among the features for fall in plain and novelty effects, new in both texture and weight.

Broadcloth is unmistakably progressing in favor and for its summer usage has appeared in light-weight, with a surprising range of embroidered effects and with interesting decorations of applique glace leather. As a competitor of Kasha and the de luxe flannels, it has been included in the superior grades of skirtings for wear with the jacquette.

Dazzling Diversity of Prints

Considering the print as mere merchandise, it today is said to record the outstanding success of the silk field. The resources of the silk designers, who are constantly besought to put "sparkle" into their derived designs, appear to be unlimited.

"Persian," that most popular of all features in ribbons, in which field it is now a staple, runs with infinite variation from authentic and literal document derivation through the long list of crepes and silks. Far from being played out, it is played up so freshly by means of fantastic and, in many cases, beautiful, ultra-modern variants, that it is on the high road to a staple place among these productions.

Included in the long list of additional featured patterns of derived authenticity are Egyptian, Assyrian, Greek, Roman, Byzantine, Arabic, East Indian and Indo-Chinese, Turkish, Japanese, Ukrainian, Russian, Roumanian, Balkan and medieval Italian. With these influences uppermost, the multiplicity of detail is almost overwhelming. In addition there are, in bold relief against the maze of museum inspiration, futuristic French and Viennese modern developments as far as possible removed from the primitives, or the pagan art influence.

(Courtesy Botany Fashion Service)

To the widespread vogue of the highly diversified and diverting printed silks, do the novelty woolens owe in large degree, their rapidly rising prestige. Samples above show typical patterns of interesting derivation.

Center, Crinkled Crepe, Cheney Bros.; Top, Denishawn Prints, Robinson & Co.; Left, Printed Pagoda, H. R. Mallinson & Co.; Right, Egyptian Print on Rhama Faille, Penikees Silks, Carl Schoen Silk Corp.

Again, the vast array of small formalized geometrics or practical calico all-overs is presented with increasingly certain approval, below the extreme fashion line.

The ever-popular polka dot is also freed from the tyranny of mechanical all-over usage and finds itself assembled by French artistry into distinguished tree forms with modernized branches and roots, in ten-inch repeats. But in this sense only is the large pattern approved, that hardy perennial, the old naturalistic "spray," having been almost entirely withdrawn.

Standardized Silks

Among those silken textures which parallel the woolen staples are the wool-filled crepes. Mallinson's announce their Roshanara, Thisldu and Pussy Willow Prints as within this classification and of an undiminished appeal. Bordered Roshanara, especially in the chenille elaborations, is reported as a leading success, with drawnwork versions of Thisldu a close second.

Crepe faille is an outstanding feature of the successful spring line of Belding & Co. Crepe Cashmere, of an exceptional style appeal and, in its rich luster interestingly reminiscent of the traditions of cashmere, is quoted as a feature of exceptional popularity.

Cheney Bros. rate their Crepe de Chine and Crinkled Crepe as their leaders for spring.

Robinson & Co., who presented their semi-transparent, pebble-back Crepe Denishawn early in the season, announce it as their leading number, with Denishawn prints, a second series, equally successful.

Cottons De Luxe and Otherwise

The vogue of luxurious novelty cottons places them at the apex of midsummer fashions. Rezo Crepe, with innumerable variations of its puffed, blocked and embroidered surface, is effecting a serious rivalry to the printed cottons of eastern origin. These Oriental patterns, however, arrive from France printed, not in the shawl or sheet form, but by the yard on a "seer-sucker" rippled base, thus doubly strengthening their appeal.

Embroidered cottons are of infinite variety in texture, technique and color treatment. Among the crepes, which introduce artificial silk decoration with great ingenuity and serve as the base of much of the embroidered originality that is found in the Wanamaker Palm Beach collection, an interesting, indeed remarkable, organdie of green and violet highly elaborated by means of close human figurations in white. This subtle blending of color, texture and motif, priced $12.00 a yard, perfectly illustrates the newer fabric message to the eager and discerning eye on the upper levels. Down below, on the bargain counters, in fact, may be found by eyes equally eager and discerning, the derived design "print" ranging all the way from Khartoum to Kamchatka.

Styling as Stimulant

New Ideas in Men's Wear Will Expand Business

By *Joseph Frankel**

The men's wear mill which will pay a great deal of attention to the styling end of its business, is to my mind going to be more successful in getting business. Where two styles of the same construction, of equal quality, are presented to us, the line that possesses the best styling, is given preference in selection.

Careful styling of a cloth will yield big returns to a mill. As prices continue to go up, the consumption of cloth per unit will go down, and the industry will need stimulation. The best stimulator is the bringing out of new things, things which will tempt young men, who are the big buyers of clothing.

The big volume of business in the clothing industry is done with young men. There are three young men's suits sold to one man's suit. A young man can be easily tempted to buy an extra suit if he is shown an attractive pattern. For that reason, it is very urgent that mills develop the styling end of their business on a larger scale than they have in the past.

With the lessening of consumption owing to higher prices, one of the ways of helping to keep machinery busy, will be in the creation of new ideas in style. Any mill with a fair sized production will consequently find it advantageous to put forth greater effort in the styling of its product.

The consumer is ever ready to give preference to new ideas. This is strongly exemplified through the fact that fancy suitings are outselling blue serges. This demand upon the part of the consumer will continue to grow and it is a good thing for the trade to encourage the interest of the buying public by introducing new styles frequently.

* Frankel Bros., New York City.

Lancashire 1922 Dividends

MANCHESTER, ENG.—A summary of the stocktaking reports for 1922 of 270 Lancashire cotton companies engaged in the spinning only of cotton yarn has been prepared by Frederick W. Tattersall, of Manchester. Of the 270 companies which have a total paid-up ordinary share capital of £38,877,340 and 27,120,714 spindles, 150 were unable to make a distribution to the shareholders. The remaining 120, however, declared dividends varying from 1¼ per cent. to 27½ per cent., absorbing a total sum of £1,090,324. The average per company for the 270 mills is 4.01 per cent., compared with 7.83 per cent. for the same concerns in 1921.

Style Tendencies in Silks, Knit Goods and Cottons

Vogue in One Division Has Its Effect on Other Sections of the Textile Market—Example of Prints and Transition from Cottons to Silks—Modification of Colors from Brilliant to Softened Effects—Developments in Knitted Silk Fabrics

By *Mrs. D. MacDougal*

STYLE changes and developments in textiles, which occur from season to season, are brought about by public demand. Manufacturers continually have an eye on the situation and are quick to feel the slightest swing of the style pendulum in one direction or the other. One season's successes serve to establish firmly those of the next. "Proven" fabrics are repeated and the novelties offered are usually variations and perfectings of a scheme already found good.

Colors vary with the mode. If "gay but too brilliant" is the criticism of one season's collection, softer color effects appear for the next. If the popularity of solid black proves wearisome, brown is pushed into first place. Shades of tan and gray follow naturally and green is bound to be popular in some group.

Growth of Print Vogue

Very often the success of one fabric will establish that of another. One has only to study the print situation to see clearly an example of this fact. Last spring and summer saw cretonne elevated to the position of a dress fabric which proved more or less generally popular. It had its drawbacks. It was heavy in weight, expensive when of a good quality and exclusive pattern, and it remained a cotton fabric suitable only for country daytime wear. It constituted, however, a high light in the dress field, something different, and the enormous general vogue for printed silks and cottons is the natural outcome.

Developments in All Divisions

Silk, considered in the old days a spring or summer fabric and one suitable only for formal use, has become an all-year-round proposition and there are silks for every occasion, from wash silks to regal metal brocades.

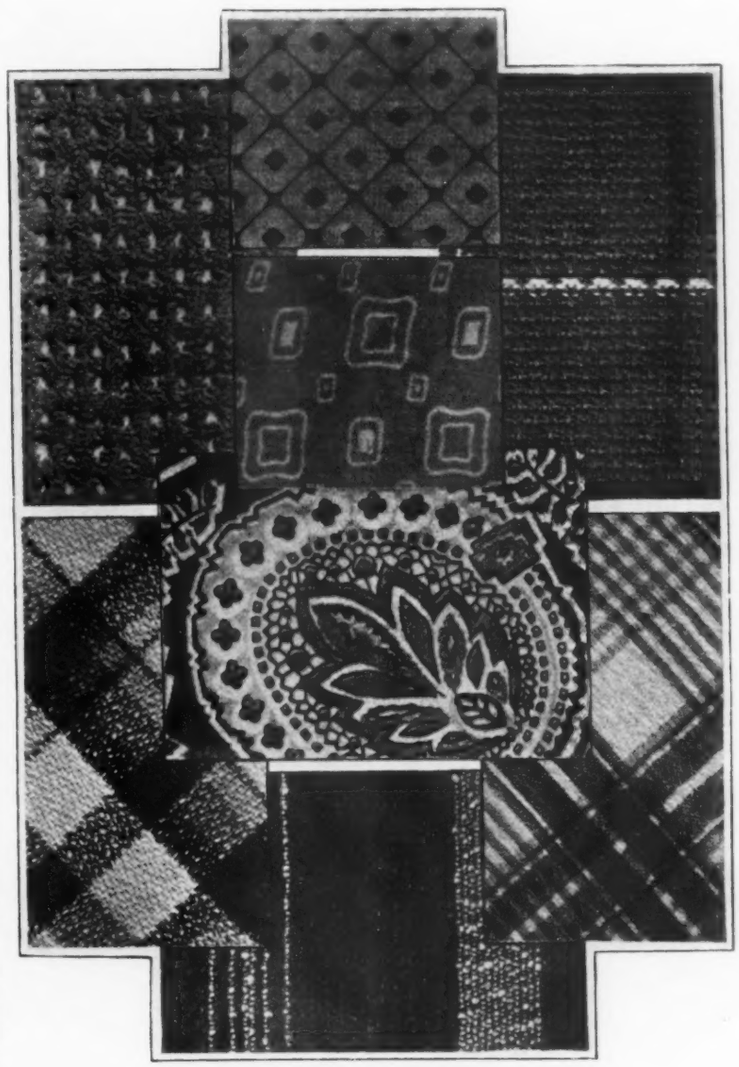
There is no question that the rapid growth of the vogue for sport wear has done much to promote an interest in knitted fabrics. This branch of the textile industry is still in its infancy, but the strides taken toward eliminating the drawbacks and in perfecting knitted textiles have been rapid and thorough, so that even now the construction of knitted cloths is practically mechanically perfect.

Wider Range of Materials

An enormous widening of the range of materials offered has also been evidenced, until we find not only lines for sport wear which established knitted fabrics on a firm foundation, but materials for general use, semi-formal occasions and even evening wear.

In the cotton group for spring we see a reflection of the all-over embroidered woolens now worn, for all-over embroidered voiles, organdies and even ginghams are offered.

The popularity of knitted fabrics is repeated in this group by forms of cotton ratine in an almost endless variety of patterns, and soft French cotton crepe, printed in Paisley patterns, offers the perfect material for the woman looking for a lightweight colorful cotton print.



GROUP OF COTTONS

Top Center—An Interesting and Conservative Printed Voile, Excellent for Making Town Frocks; from Mills & Gibb.

Two Center Samples—Mills & Gibb Offer These Printed Crepes with a Silk Selvage, So Like Georgette as to Be Placed in the Formal Cotton Class.

Bottom Center—A Heather Mixture Eponge with Stripe of Contrasting Color, Made in England for Shipley-Hollins Co., an Unusually Smart Fabric for Tailored Suits.

Upper Left—Fish Net Ratine, Woven with Cross Stitch Pattern, an Imported Cotton Fabric, Shown by Mills & Gibb, for Sport Wear Costumes.

Upper Right—Eponge Matte, an Imported Fabric in Three Colors, Smart for Separate Skirts or Suits, Is Shown by Mills & Gibb.

Lower Left—A Smart English Plaid Ratine, Shown by Shipley-Hollins Co.; a Colorful, Sturdy Fabric for the Separate Sport Skirt or the Two-Piece Suit.

Lower Right—A Light Weight Cotton Crepe Plaid, Made in England, Shown by Shipley-Hollins Co.

Knitted Fabric Tendencies

About ten years ago the knitting industry offered to the cutting-up trades knitted materials by the piece, to be sold in competition with woven goods which before that had enjoyed unquestioned supremacy. There were then many difficulties which now have practically been eliminated. Perhaps one of the greatest of these was the tendency of knitted materials to sag, a very different term from stretching, for their stretching qualities are recognized as an advantage.

Then, too, the first lines offered were decidedly limited in variety, a distressing sameness proving a decided drawback. Tricolette and Paulette, fibre silk materials, were among the first to achieve any great success, the former soon appearing with a satin stripe, dropped stitch and other variations. Originally a suiting, it was soon produced in a lighter weight and was used for frocks and blouses.

It blazed a wide and seemingly endless trail, for knitted fabrics are today produced in a wide variety of patterns and textures suitable for every occasion, and it may be said of the entire collection that they are sturdy and non-sagging. Wool and fibre silk are knitted together to obtain unusual patterns, stripes, overlays and two-toned effects being the result. All artificial silk is sometimes so closely and perfectly knitted as to give the appearance of having been woven, and when a metal thread is introduced we have a knitted silk formal enough for evening wear. Persian patterns are now found in knitted cloth.

Today there are crepe surface knitted fabrics, such as Krepe Knit, one of the first to appear; Creponge, Belle Crepe; in the novelty group Kordette, which, as the name indicates, shows a decided cord, yet is soft and pliable, and Celtyne Imprime, a crepe surface knitted fabric exquisitely printed in vari-colors. Both fabrics are by Haas Bros. Tricosham is a knitted crepe de chine, and Denisette is so closely woven and fine in texture as to appear to be, on first glance, a woven silk faille.

Velvet pile effects are well represented by such materials as Vel-Vey, an artificial silk knitted with a velvety stripe, with loops cut in the process of knitting, alternating with a ribbed stripe, a soft, luxurious, non-crushable material perfectly adapted for the making of costume suits, wraps and frocks.

Mello Tone, a reversible artificial silk and wool fabric, appears in two tones of the same color. The silk in

the lighter shade forms one side; the other side shows the darker colored wool raised in relief against it. Both are products of the Halperin Mills.

The Warwick Knitting Mills offer Star Dust, an artificial silk, knitted with three colors in a broken check design. It is as firm in length as in width, is non-sagging and does not curl at the edges, an excellent feature. This should prove an excellent silk for tailored one-piece frocks, sport frocks and suits made with jaunty short coats.

Oriental is a vari-colored fibre silk showing an effect very like a Roman stripe and slanting high lights which give it an unusually interesting color effect. A costume suit of this showing plain colored silk used in combination is unusually smart and artistic.

Fibre silk and wool striped knitted materials are decidedly practical and many interesting variations are shown, introducing grouped stripes, stripes of various widths and interesting color contrasts. Dervish plaids are overtones in fibre and wool made even smarter by a small check of the silk. This is a particularly youthful appearing fabric and will no doubt prove successful for the making of simple tailored one-piece frocks.

Knitters are constantly striving after a perfect knitted fabric suitable for evening wear, as when this is accomplished knitted fabrics will be a universal proposition. Many of the pure and fibre silks now on the market are both appropriate in texture and color, but the introduction of a metal thread with the silk will put the fabric in the formal class. Several fibre silk and metal thread knitted fabrics are being shown, but this branch is not perfected, although knitters state that it is only a matter of a short time.

Modifications in Silks

Silk is the backbone of the spring and summer wardrobe, for appropriate weights and patterns are offered for every hour of the day. The spring of 1922 brought into prominence a collection of silks which was artfully original and intrinsically beautiful. Paul Poiret on his recent visit to New York was loud in his praise of our silks, which is praise indeed, as he is known to be an artist in the matter of color blending and fabric combinations.

The demand for brilliant shades caused a perfect riot of color in the silk field, which offered a season of cubist and futuristic effects truly startling. In sharp contrast black, all black, usually Canton crepe faille, crepe de chine or satin-backed crepe, ruled supreme for general wear.

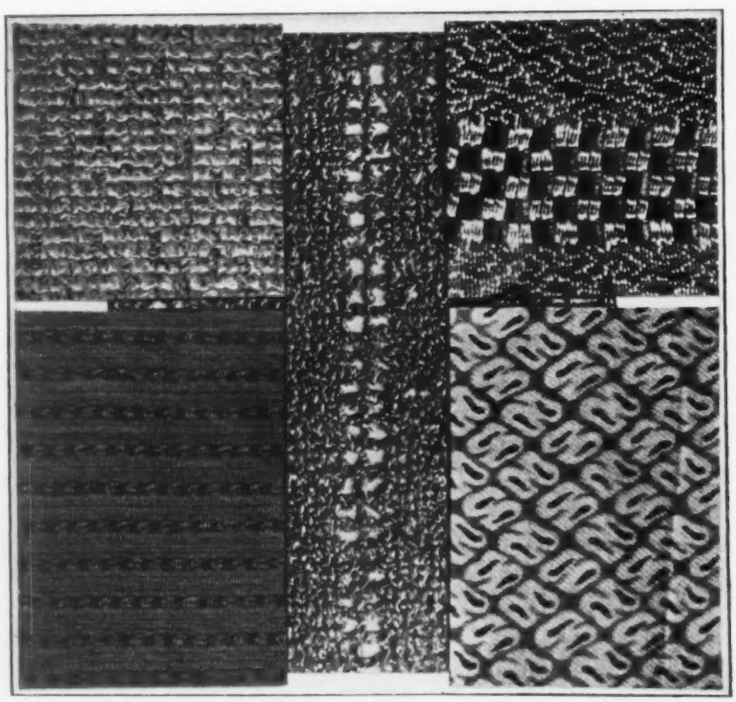
This spring sees a certain pleasing modification all along the line. The brilliancy of the printed silks is slightly softened, offering a pleasing richness, the colors being blended, rather than contrasted in startling juxtaposition.

Brocades show colors exquisitely shaded and over these colors is cast a soft metallic sheen which enriches the fabric and does not take away from its supple pliableness. Black has in a measure given way to browns, shades of tan, gray, rust and Lanvin green for general wear. An enormous vogue for moire was predicted by the dressmakers for last season, with taffeta coming in for unusual popularity. This proved a flash in the pan, and while taffeta is always more or less used for youthful dancing frocks, moire, offered in the form of draped frocks and costume suits, died a natural death rather early in the season. Dance frock taffeta is often of the crisp variety, but the softer textures now on the market are practical, as well as beautiful, and those which will journey to the tub and return uninjured are a boon to womankind and enjoy a steady popularity for frocks, simple two-piece suits and costume slips, to say nothing of the enormous amount sold for the making of underwear.

Manufacturers are anticipating a successful spring season for the flat crepes, which appear not only in suit shades, but high colors as well. Their soft clinging qualities insure their success during the season when draping is the vogue. Novelty crepes are unusual in both weave and color and those which show a decided rib, such as Nazimova, are far from bulky, but have a decided body combined with rich softness.

Faille Fantome is made interesting by a broken stripe appearing in a contrasting color, two-colored silks being exceptionally smart for the costume suit with a blouse in plain color. Old favorites, such as Canton, crepe

(*Continued on page 357*)



GROUP OF WOVEN SILKS

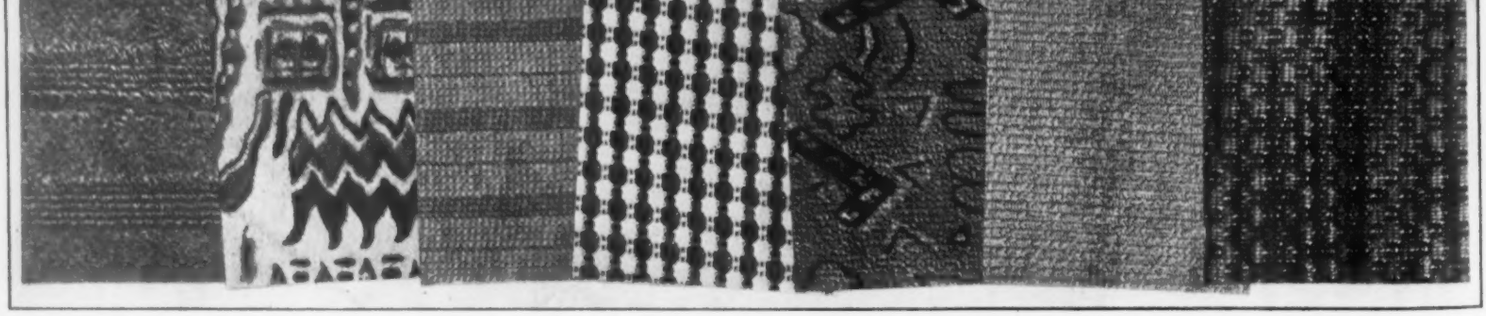
Upper Right—H. R. Mallinson & Co., Inc., Offer Whippoorwill Brocade as a Sport Silk, But the Richness of the Coloring and the Metallic Sheen Makes It a Perfect Material for the Making of Summer Evening Gowns and Wraps

Lower Right—A Printed Sport Satin, Smart for Making Separate Skirts, Is Shown by Joseph Berlinger Co.

Upper Left—Kordovette, a Two-Toned Silk with a Fleck, Should Prove a Favorite for Sport Wear; from Haas Bros.

Lower Left—Faille Fantome, Showing a Broken Stripe in a Contrasting Color, Is Smart for One-Piece Frocks and Costume Suits; a Haas Bros. Product.

Center—H. R. Mallinson & Co., Inc., Offer for Sport Wear Drop Stitch Thisldu, a Silk Ratine.



GROUP OF KNITTED SILKS

From Left to Right—VEL-VEY, a Knitted Velvet, Whose Rich Appearance and Light Weight, Make it Suitable for the Spring Costume Suit or Evening Wrap; from the Halperin Mills. CELTYNE IMPRIME, Offered by Haas Bros. for Sport Wear, Is a Knitted Crepe Printed in Vari-Colored Patterns. NUBIA STRIPE, from the Warwick Knitting Mills, Is a Fibre Silk and Wool Knitted Suiting Fabric in Interesting Color Contrasts. STAR DUST, from the Warwick Knitting Mills, Is a Knitted Fibre Silk in Broken Check Pattern, Smart for Town Wear in Black and White. KHEDAN, an Egyptian Printed Knitted Fibre Silk Fabric, Suitable for the Making of Smart Sport Wear for Palm Beach or General Summer Wear; from the Halperin Mills. KORDETTE, a Haas Bros. Product, Is a Crepe Surface Fabric Showing a Decided Cord, the Softness and Exquisite Coloring of Which Recommends it for a Costume Suit, or Semi-Formal Dress. ORIENTAL, a Vari-Colored Knitted Fibre Silk Showing Slanting Highlights, Excellent for Two-Piece Suits and Frocks; from the Warwick Knitting Mills.

The Danger Point in the Cotton Supply

Sir Charles W. Macara, World Cotton Authority, Believes That America Will Rise to the Occasion, But, That if She Will Not, Then Lancashire Will Develop Sources of Supply Elsewhere—Cheaper Cotton and Manufacturing Costs Needed to Stimulate Consumption of Pre-War Volume

By *Sir Charles W. Macara, Bart.*

THE editor of the TEXTILE WORLD, who has requested me to contribute to his Annual Review Number, has put to me an interesting proposition. "Do I think," he asks in effect, "that the present depression in the cotton trade will be temporary, assuming that the cost of production of American Upland cotton is never to be much lower than the average cost of this season's crop grown under boll weevil conditions? May it not be possible," he continues, "that there can never be world consumption of cotton manufactures of pre-war yardage and poundage until adequate sources of a cheaper supply of cotton are developed outside America?"

In other words, do I think that the world can pay the present prices for cotton goods and purchase on the pre-war scale? Frankly, I do not, at the present moment, but I ought to say as well that I do not think the world will be called upon indefinitely to pay the present high prices.

Let me give some of the reasons for my conviction that the world will get down to easier conditions of purchase before very long, and so give a fillip to the industry engaged in providing the great bulk of the clothing material of the world. Mind, I do not say that it will be possible ever again to make and sell cotton goods at pre-war prices. One cannot say, but at the present time all the evidences point to the view that it is unlikely that we shall ever get down to the old prices again. Apart from the depredations of the boll weevil, the changes that have come about with conditions of labor both in Europe and America, during and since the Great War, will alone make it impossible for textiles—and almost every other kind of goods—to be sold at prices which ruled before August, 1914.

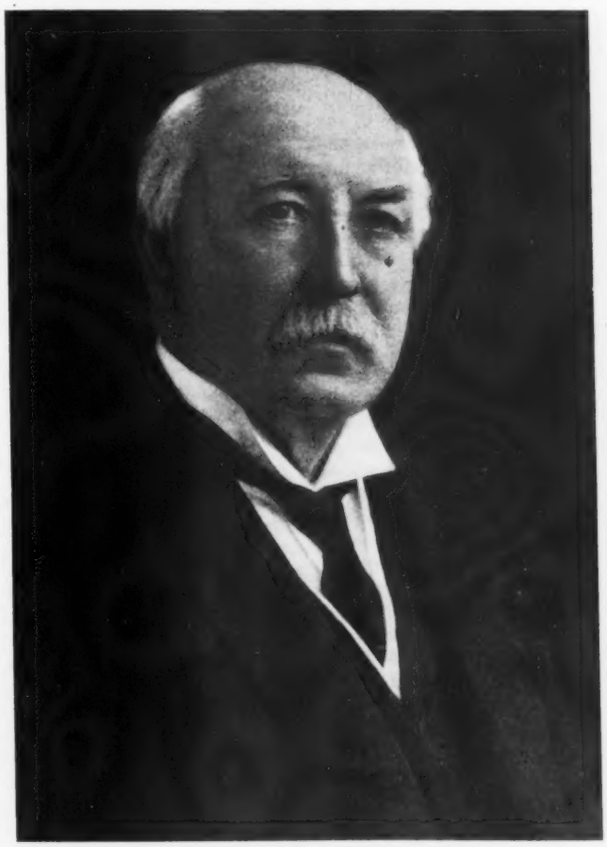
But that is not to say that prices will always remain at their present level. Production costs are bound to come down as the cost of living falls and we must get again on a basis of a full and free exchange of commodities, and I venture to think that raw cotton itself will, before long, assist in the great scheme for cheapening cotton cloth and bringing the cotton trade into a position of prosperity.

An Unjustifiable Assumption

Why, for instance, should one assume that the cost of production of American cotton is never to be lower than the cost of the crop grown under boll weevil conditions? America, surely, is not intending to be beaten by the boll weevil! We know that the ravages of the pest have been terrible—that it has destroyed in one season nearly twice as much cotton as would meet the whole of Lancashire's yearly requirements—but, even so, a nation so well equipped and so fertile in resource is not to be driven out of the field by a beetle!

As I write, evidence comes to hand that the boll weevil can and will be conquered. My friend, Mr. J. S. Wannamaker, President of the American Cotton Association, reports that a poison has been found at last by which, at the cost of two or three dollars, an acre of cotton land may be cleared of the weevil. He personally has inspected land which under treatment is now producing up to a bale an acre or more and states that a big scheme is being financed for dealing with the pest over a wide territory. One hears of other effective remedies being applied in Alabama, Florida, Arkansas, Mississippi, and elsewhere; indeed, the cheap and effective "Florida plan" of Dr. George D. Smith would add, it is estimated, 6,000,000 bales a year to the crop if adopted throughout the cotton belt. So that it is clear that we must not take it for granted that all hopes of producing larger crops and cheaper cotton have been abandoned.

Besides, there is no spinner who is satisfied that the high prices ruling today for American cotton are due simply and solely to the ravages of the boll weevil. The rise in price of Middling American during the past twelve months from 10d. to 15d. a pound was due almost entirely to speculation on the Exchanges in America, coupled with the propaganda that has been going on for the shortening of the crop. One is well aware that cotton cannot be produced today at the same price as before the war, but there is reason in all things, and the spinners of Lancashire cannot but feel that they are being made the sport of men who have no interest whatever in cotton beyond the gambling interest.



Sir Charles W. Macara, Bart.

It would be some satisfaction if the planters were getting the advantage, seeing what hard times many of them have passed through, but they and the spinners see cotton soaring to their mutual discomfiture, while the product upon which their livelihood depends is being tossed about from hand to hand, and fortunes made at the expense of those who grow, manufacture, and wear the commodity! Had the raw material remained round about 10d. a pound, which would no doubt have paid the planter even in these days, the spinners and manufacturers of the world would have had a totally different tale to tell now. As it was, the upward turn in cotton prices which set in in May, and continued until near the end of the year, to a great extent stifled the revival of the cotton trade, and has assisted in no small measure in bringing spinners, at all events, to the verge of ruin.

No "God-Given Monopoly"

Now, it is as well for America to know that Lancashire is not inclined to put up with this kind of thing indefinitely. Lancashire has no feeling whatever in the matter, but as a business proposition it will be obliged to safeguard itself in the matter of quantity and price. Cotton is not the "God-given monopoly" of any one country, and if America does not keep pace with the world's requirements, or runs the price up to a point which makes the purchase of cotton goods impossible for the great mass of the poorest people in the world, then there is nothing for it but to look elsewhere for a great part of our supplies.

"Raw cotton for the factories of both hemispheres," says a well-known American writer, "will eventually be grown in the countries which can profitably sell it at the lowest price to the consumer. And, evolution being a slow process, it is necessary to look into the past to measure progress. Cotton production for twenty years has been the subject of producers' organizations in America, and it has been continuously, vehemently, and on occasion furiously, denied that the prestige of being the dominant world purveyor of this important raw material can ever be wrested from the United States."

The writer, however, goes on to say: "The record shows that during the twenty years, 1840-60, this country (America) produced within a fraction of 75 per cent. of the total, whereas during the last ten years, during which the boll weevil has thoroughly established itself and propaganda for restricted acreage has become an obsession among our growers, this country produced only 55 per cent. of the commercial cotton crop of the world."

This being so, Lancashire must look elsewhere for a large quantity of its raw material. It cannot do otherwise if America is to consume more and more of her own cotton in her own mills, and at the same time her planters are to content themselves with producing a ten-million-bale cotton crop. The two questions of paramount importance to European spinners today are: "Will America in-

crease her consumption more rapidly than cotton growers in other parts of the world will increase their production of the raw material?" and "Will the growers in the Southern states be content with a ten-million-bale production when once there is a world-wide demand for cotton?" Personally, I am inclined to answer both questions in the negative, and therein lies my hope that we shall, in a few years' time at all events, get the cheap and plentiful supplies of cotton that the world needs.

A New Interest in Cotton Growing

Leaving America to settle the second question in her own interest, it may be useful to point out to the cotton growers of the Southern States of America exactly what they are "up against" at the present time, and what is likely to be the extent of the competition they will have to face in the future if they persist in shortening their crops. The American planter should realize first of all that the past twelve months have seen a total change come over the whole question of cotton growing. The simple reason is, of course, that the higher the price of cotton in America, the greater will be the development of the other cotton fields of the world. Not only has the prospect of a shortage of cotton caused people in all parts of the world's cotton belt to consider the possibilities of raising the raw material, but spinners in England especially seem now to have really awakened to the danger ahead. They have become interested to the extent of applying to Parliament for powers to compel all users of cotton to pay a levy on every bale towards a fund for cotton growing, and though Parliament has not yet given its sanction, the majority of spinners have been paying this six-penny levy voluntarily during the past year.

This implies a total change of heart on this question, and a determination that matters shall not be allowed to drift any longer. An important development has taken place, also, with regard to the work of the British Cotton Growing Association. Hitherto, perhaps, the efforts of this body may have been treated with something of disdain by the American planter, seeing that in twenty years the Association has produced so little actual cotton, but it is now being realized that the spade work done has been of the first importance. Not only have the Association's experiments shown where cotton can be grown, but they have shown where it is useless to try and grow it, which is knowledge almost equally valuable.

And now that these preliminaries have been settled, the Empire Cotton Growing Corporation, with far greater resources behind it, is taking up the work, and is likely to produce cotton in much greater quantity within the next few years. The growing of cotton on a very large scale is to be undertaken in the Sudan, and the Zaria cotton belt in Nigeria and that in Nyasaland are to be greatly extended and improved. Promising areas are to be opened up in the Northland Transvaal, in Swaziland, in the West Indies, in Queensland and elsewhere, and the cumulative effect of these schemes is likely to be very great.

One hears with regret that nothing is to be done at present to develop and improve the cotton crop of India. There, I am convinced, are the finest opportunities of anywhere within the British Empire. The Corporations are, I understand, deterred by the political and economic situation in India, but I cannot but think that they are making far too much of the Gandhi agitation and the talk of tariffs. The best plan would have been to go ahead and produce the cotton.

It has always to be remembered in the case of cotton that it should be viewed from the international standpoint, and that any increase in the quantity of cotton grown must be beneficial to the trade generally. For instance, the growing of more cotton by India would leave more of the second-grade material for the use of the spinners on the European Continent, and, therefore, free more of the better quality grown in America and elsewhere for the needs of the fine spinners of Lancashire and elsewhere.

Outside the British Empire, cotton growing is being taken up by many countries, and notably by Brazil, which appears to be able to grow cotton equal to anything raised in the Southern states of America. Indeed, in one or two of the Brazilian states, the quality of the cotton grown is not surpassed by Egypt itself. Without any special incentive, Brazil has more than doubled her crop of cotton in recent years—increasing it from 270,000 bales in 1904-1905 to 612,000 bales in 1921-1922—and now that she is showing a special interest in the matter her yield is expected to run into millions before many years have passed. Peru, again, is an ideal country for the growing of cotton. The yield per acre is greater than in any other country, and granted the necessary capital and organization are forthcoming, it would prove to be an auxiliary of the greatest importance.

No Question of Supersession

Taken altogether, these places, now that they are taking up cotton cultivation on more extensive lines, must have a great effect on the world's supply, and, incidentally, of course, must have a far-reaching effect, ultimately, upon the position in America. Even now, the tendency is to become less and less dependent upon America, as is shown by the fact that something like one-half of the cotton Liverpool handles is grown in other parts of the world. A large proportion, of course, is Egyptian, but a growing quantity is from Peru, Brazil and certain African cotton fields. Some of this cotton is cheaper, cleaner and longer in staple than American, but sometimes the color is not so reliable, a drawback which is evident when goods are not bleached.

What I would like to emphasize, however, is not that this or that cotton field is in danger of being superseded, but that all of them, producing at their fullest capacity, will be required when once the world is able to buy again all the cotton goods it needs, and the march of civilization increases the demand of that portion of the human race which is now only partially clothed or not clothed at all, and there is no reason to suppose that this increased production will mean that the planter will not get a fair price for his labor; as the world progresses he will, I take it, find not only cheaper means of growing his cotton but much more satisfactory means of marketing it than at present, and these two factors will make all the difference to his profits.

My own idea is that the world will want more cotton cloth than ever when once it can free itself from the incubus of the war. To draw contrary conclusions from the restricted demand of the past two years is foolish. The demand has been small recently, not because cotton goods were not needed, but because the price for the time being was prohibitive. The supply never has been equal to the needs of the world, and is not likely to be so for long years to come. It must not be forgotten that before the War the cotton spindles of the world were increasing at the rate of four millions a year, and even then supply was not overtaking demand. The cotton planter need have no fear; his services will always be in demand, as will those of the spinners and weavers of the world.

A Word to the Faint Hearts

During the slump we have been passing through, many men even in Lancashire, have had their faith shaken in the future, and had actually begun to believe that the great Eastern Markets upon which England depends principally, were passing out of their hands for good. I have again and again shown how ridiculously unfounded this is and how no other country in the world but England has the means of supplying the wants of the great populations of the Orient. But I will content myself here with quoting two authorities on the spot to show how mistaken is this opinion.

Sir C. W. Rhodes, Chairman of the Bengal Chamber of Commerce, who has recently been sitting on the Indian Tariff Commission, says: "Supposing that the Indian cotton industry does need protection—and no case has been made out—and that the duty on cotton imports was raised, I still believe that Lancashire would have a considerable trade with India. Bombay cannot clothe more than a fraction of the Indian population. By the time it has succeeded in increasing production to any considerable extent, the standard of living would have continued to go up too. The result would, therefore, be that the people who are now content with wearing coarse country cloth would buy Bombay cloth, while those who now use Bombay cloth would want the finest mulls and muslins from Manchester. Lancashire has certain advantages—of skill, organization, cheap capital and so forth—which she is not likely to lose, and which will enable her to continue to compete with the Indian market. . . . Speaking from experience, I refuse to take a gloomy view of the situation. The day when India can get along without Lancashire cloth is far off."

Similarly, in the course of a report on China, Mr. H. H. Fox, Commercial Counsellor to the British Legation at Peking, states that the customs statistics prove that England is today as much, if not more than ever, predominant in the cotton trade in China; that competitors have shown themselves quite unable to compete with the high quality of her cloth, her printing, dyeing and finishing; and that only high production costs are holding up a big trade between the two countries.

Getting Down to Business

These statements show that the demand is there still, as soon as buyer and seller can compose their differences. And that one side, at least, is putting forth every effort to get down to business is shown by the fact that the Lancashire cotton trade is steadily and substantially bringing down the level of values. In the case of yarns, the average value per pound exported during the eleven months ended November last was just over 26d., compared with nearly 40d. during the corresponding period of 1921, the lowest average since 1916; and as regards cloth the values per yard exported in 1922 were roughly 3½d. less than in 1921. A lowering of finishing charges and a reduction in the crushing burden of taxation would help matters still further, and the fact that the pound sterling is almost daily approaching to the parity-value of the dollar ought to assist in cheapening cotton and making things easier still. It is imperative that Lancashire should get costs down to the rock bottom, for the simple reason that while other countries are principally engaged in making cotton goods for their own consumption, Lancashire depends for four-fifths of its trade on foreign countries, the chief of which contain populations the poorest in the world.

But despite everything, trade is at last beginning to show a broadening tendency, and the English spinner during the past year has had less to complain of in the matter of demand than in the matter of price. At each end of the scale, close corporations guard the interests of the cotton merchants and the bleachers, dyers, printers and finishers, but the spinners hitherto have carried on a cut-throat competition which has of late seriously injured the whole industry. The majority of the spinning companies of Lancashire have made huge losses during the past two years, and it has

been to prevent the continual dissipation of their capital that an Emergency Committee of the most influential cotton spinners in the North of England are at present sitting with the object of consolidating forces and finding concerted means of preventing the disintegration of the industry. No longer will they be satisfied to dispose of their stocks of yarn at 2d. to 4d. per pound under cost price, and methods are being introduced which it is believed will prevent weak sellers falling a prey to merchants who have for so long been exploiting the English spinner.

Future Revival of Trade

These are domestic troubles, however, which I feel sure will be remedied in the near future, and by the time we have put our own house in order I believe we shall be in for a steady revival of trade. The wrangle about Reparations and the political troubles in the Near East have greatly hindered progress, but with a Government in power which has the full confidence of the business men of the country, there are high hopes of things settling down rapidly, and industry being given free and full scope to develop.

Cotton Advisory Boards

One essential we are coming to regard as indispensable in the cotton trade in England if we are to get the best possible results and always be abreast of the times. I refer to the need for the establishment of a permanent Advisory Committee, something on the lines of the Cotton Control Board set up during the war, to watch over the interests of the trade. Since that Board was dissolved automatically by the passing away of the Defence of the Realm regulations, both employers and operatives have felt its want very keenly. It might be thought that the Master Cotton Spinners' Federation would, so far as the spinning section of the trade was concerned, be sufficient for all purposes, but though I have the highest opinion of that body, properly directed, and was responsible for its growth and development during my long presidential term of office, one can see that its hands are too full of matters of detail nowadays to have the time and opportunity to devote to questions of high policy.

Trade Needs Watching

The trade, in its international aspect particularly, requires a select body, with the best brains procurable, to be constantly on the watch to check the ill-considered actions of professional politicians, and to see that the trade in its broader interests is not jeopardized in any way. The industry is world-wide in its ramifications, and its interests are too important to be left in the hands of paid officials concerned solely with routine work. Those who are meeting now for the purpose of rescuing the spinning trade from financial ruin, are convinced that after this work has been accomplished, something will have to be done to give a new direction to the higher affairs of the industry.

American Textiles in China

Possibilities of Investment in Native Mills, But Opportunities for Export Trade Greater Elsewhere

By *E. T. Pickard**

FROM a purely commercial point of view, the difference between profit and loss depends upon that narrow margin of intelligence, imagination and determination of a people engaged in any enterprise. Of course, economic factors of world significance must bear materially on the case, especially so when such enterprise depends in any degree upon foreign trade.

The different sections of China with their seething populations offer an apt illustration. Trade there is largely one of individualistic tendencies and, rightly or wrongly, the civilization has not yet developed coordinate thinking or enterprise. Her agriculture, commerce and banking are largely in the hands of individuals and, by and large, are successfully administered without what the Occidentals would regard as the benefits of amalgamation and combined operation. Unlike nearly all other countries, commerce and industry in China continue to function and operate successfully regardless of Governmental stability. It has been the recent history of China that with or without stable government, business of the country continues practically on an uninterrupted basis with its resultant influence upon cottons.

Notwithstanding that 95 per cent. of her people live simply from day to day and are constantly fighting to keep body and soul together, the purchasing and consuming power is steadily increasing and in the course of time, with the development of her natural resources and railroad facilities, vast areas of unproductivity will be opened up, assuring to China a rightful place in the world's economic and commercial relationships with other countries.

China and Textile Consumption

The significant relation of this vast country and her 400,000,000 inhabitants to textile raw materials and products is apparent and hardly needs any emphasis. Ordinary consumption of cloths made in China and those imported from other countries continues to grow even without the elements of style and social competition which has such a large bearing on the enormous use of textile materials in the Occident. If within our day and generation, we begin to see the introduction of these other elements which make for increased consumption, it will have a tendency not alone to demand capacity production of the world's spindleage, but it is likely to be no mean consideration in creating world shortages in the textile raw materials, if new areas and new energies are not introduced in cotton and wool production.

In this connection, the increased consumption of cotton in Japan, China and India, just about compensating for the decreased takings of Europe, are worthy of serious consideration and study. China, and India, and Japan to a lesser degree, are steadily increasing their spindleage so that in the course of time, they are likely to attain manufacturing capacity sufficient to take care of a considerable proportion of their domestic requirements in those grades and qualities of cloth of which their peoples consume by far the major proportion.

It is true that unit production in Japan, China and India is much below that of America and England, but I dare say that the elements of low labor cost and the type of lower end goods produced, more than compensate for the other differences between these countries.

Possibility of American Textiles

As to the significance of China as a market for American textiles, I am not one of those who hold forth any alluring prospects for American textile merchandise in China except in certain grades and types of cloth in which we may be especially efficient and which are produced practically automatically and in great quantity. Present mills in China, and those which will be established during the next decade or two, specialize in the production of the coarser counts such as are used in major quantities, while imports from Japan and India will considerably meet their requirements for the lower cost fancy constructions. Relatively low labor costs in India and Japan, notwithstanding the relative inefficiency of labor, not alone put America out of the running in most lines of goods, but to my mind will increasingly affect Lancashire shipments.

China's Domestic Production

In this brief article I do not propose to enter into details concerning the peculiar requirements of the Chinese market or their special methods of merchandising and distribution, nor do I want to treat the subject from a statistical point of view. Although I am seriously considering the potentialities of China as a steadily increasing consumer of cloths, I nevertheless, am compelled to believe that she will more than make up for these increased demands by domestic production and that imports will be measured largely by the specialties which other countries are skilled in producing.

If I may be forgiven for the injection of one of two incidents of statistical significance bearing on my statements, I would point to the fact that in 1913 China took slightly under 7,000 bales of American cotton, whereas in 1921, she took 153,000. In unbleached cloth, such as America has specialized in producing for the world's markets, she took 78,000,000 yards in 1913 and 20,000,000 yards in 1921, while for the first ten months of 1922, she bought but 12,000,000 yards. England, of course, has always been China's big source of supply for bleached goods and as an indication of America's resources and mobility since pre-war days, it is only necessary to observe that China took from us direct only 25,000 yards in 1913, while in 1921 she took close to 3,000,000 yards, and in 1922 almost the same. Doubtless with the establishment of increased bleaching facilities in China, her takings of white goods from England, her chief source of supply, will in time be considerably reduced.

American Capital's Opportunity

The tendency toward home production in China and India is steady, determined and irreducible. We may as well face these facts and if it is desirable for American capital and enterprise to continue its interest in the China market, it must take the form of mill investment and management. Most of all China needs investment of American capital, administered and supervised by Americans. Doubtless moneyed interests in this country have studied very carefully the conditions to which I allude and I am confident that within a reasonable time we shall see more new mills built in China with American capital. The manufacturing processes will be superintended by American technicists and experts who will utilize and train local workers to the high degree of efficiency of which the Chinaman is capable. The combination of American capital, machinery and administration with the potential efficiency and renowned industry of the Chinese is sure to put such local production competitively out of bounds with American and English goods.

Blind Optimism Unwarranted

It is far from my intention to convey the idea that American-China traders should fold up their tents and quietly steal away. There is much business to be done in the immediate ensuing years, even on an increasing scale in some lines of goods, but the blind optimism prevailing in certain quarters with respect to piece goods trade with China is certainly unwarranted.

Let us turn our energies towards other sections of the Near and Far East, such as Egypt, Abyssinia, Persia, the Red Sea, the Netherlands, East Indies and Malasia, all large consumers of cotton goods such as America can competitively produce, and many of them virgin territory for our merchants. The more steady and cultivated markets such as Latin-America and Australasia continue to hold further alluring prospects for the American manufacturer who shows tolerance in conforming to the special demands and requirements of these markets. This conformity to requirements, however is positively necessary.

* Chief, Textile Division, Bureau of Foreign and Domestic Commerce.

Producing Better Citizens in Southern Mills

The Cotton Industry in That Section Has Proved a Great Socializing Factor—Community Work and Educational Activities Were the Two First Steps—Putting a Worker on His Own Is the Urgent Problem at Present—A Few Thoughts on the Possibility of Employe Representation in the South

By a Member of the Staff

DURING the year just closed, much has been said and written regarding the comparative conditions of the cotton manufacturing industry North and South. Wages in the two sections have been placed side by side and the discrepancy which exists in favor of the South pointed out; varying estimates have been made of the extent to which this differential is absorbed by the compensatory expenditures on community work which forms an integral part of the program of every southern manufacturer. Taxes, hours, power costs, total costs, selling prices—these and many other factors have been compared, and more or less sectional feeling developed.

Hand in hand with this discussion has gone a great deal of rumor about the bodily removal of the New England textile industry to the region south of the Mason and Dixon Line. This talk grew to such proportions that holders of eastern mill stocks came to the office of TEXTILE WORLD to find out how much longer they might be expected still to have an interest in a New England cotton mill.

In order to get a first-hand impression of actual conditions in the South, the writer recently made a trip through that section, visiting great corporations and single-unit mills, talking with manufacturers, superintendents, overseers, and operatives. He returned with the conclusion that comparisons in this case are not odious, but ridiculous. Cotton manufacturing in the North is an industry—one of many industries, in the South it is a force which is difficult to label but may be described as a great socializing factor. This remark carries no slur on the New England manufacturer; it does not infer that the latter is less sincere or less human than his southern competitor. It merely means that existing fundamental conditions, resulting from historical events over which the present generation had no control, are not comparable North and South.

Basic Conditions in South

This historical phase of the problem is treated elsewhere in this issue by W. D. Adams, secretary of the American Cotton Manufacturers Association, whose intimate acquaintance with the Southern textile industry enables him to speak intelligently and authoritatively. The writer will content himself with the presentation of certain broad impressions, which he, as an outsider, gained from his visit to the South. It is hardly necessary to mention the outstanding differences between the two sections, such as the fact that the labor in the South is all Anglo-Saxon stock while that in the North is drawn from nearly every country in the world; or that the southern industry is a new one in comparison with that in New England, with a correspondingly greater proportion of new equipment and modern buildings, and a chance to profit by the mistakes made by their Yankee predecessors. These facts, important as they are, were known to the average manufacturer long before the writer was cognizant of them. It *is* worthwhile, however, to consider some of the work which southern mills are doing and which warrants the industry in that section being called "a great socializing factor."

Naturally the development which most strongly impresses the visitor from the North is that group of activities which may possibly be called "community work" but which is still labelled "welfare work" in many plants, and which includes the provision of living facilities, sanitation, and social and recreational interests. The acceptance of this additional burden by the manufacturer came about naturally. Locating his plant in an isolated section where he could get sufficient acreage and a low tax rate, and drawing his help from the agricultural sections in the mountains, it was necessary for him to provide houses if he were to secure operatives. The site was usually nothing but a cotton field; there was no town near at hand where the workers could live, and certainly the latter had neither the means nor the inclination to build their own homes. And so, out of necessity, not philanthropy, there grew up around each mill a little village of company-owned houses, in which operatives might live free or at a nominal rent.

But houses do not make a commu-

One of the Most Interesting Sections of the South Is Gastonia, N. C., the Fine Yarn Section. An Important Factor in Gastonia Is the Gray-Separk Group, Comprising Eight Mills. The Accompanying Photographs Show a Few of the Community Developments in That Group. A Representative Row of Operatives' Houses Is Pictured in Fig. 1, Taken at the Parkdale Mills, Inc.

This Corporation Maintains Three Community Houses or Social Centers. Two Views of the Community House Which Draws Operatives From the Gray Mfg. Co. and Parkdale Mills, Inc., Are Shown in Figs. 2 and 3. The "Mother's Club" and the "Modern Health Crusaders," Two Important Organizations Are Shown in Figs. 4 and 5 Respectively, Both Taken at the Arlington Cotton Mills

nity. Human needs are complex. Stores had to be provided and here again it was up to the company. Roads had to be built, and gardening facilities provided.

The first houses were undoubtedly crude affairs — merely "shacks." Sanitary conditions were none too good. But it did not take long for a manufacturer to realize that sickness meant curtailed production, so sanitation was the next logical step. This too was merely good business—not philanthropy. Later this spread out into the broader problem of supplying games and other recreational activities in order to build up the physique of the people and make them resistant to disease.

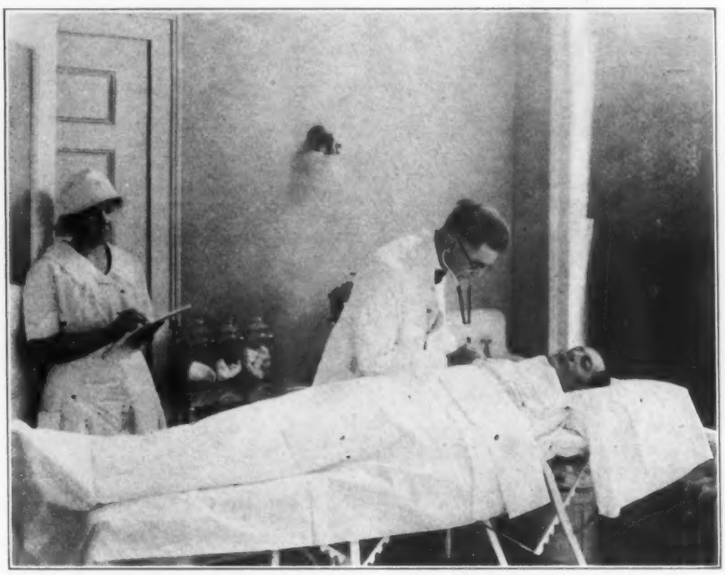
Then, as other mills sprang up, and it was possible for workers to find employment elsewhere, it was necessary for a manufacturer to build up social interests which would tend to minimize that curse of the southern industry—excessive labor turnover.

As a result, the mill villages of the South offer a complexity of activities, a few of which are described in this issue of TEXTILE WORLD. It is impossible in the space available to present anything like a complete picture of this community work. Nor are the particular mills described cited as unusual developments. In most cases they are taken as rather typical examples; or else they illustrate particularly well the progress of one specific phase of community life.

Educational Activities

It must be repeated that these developments were necessary ones and that the manufacturers did not claim any credit for them—nor were they entitled to any.

But the movement which the writer personally considers the second big group of activities, namely, educational work in all its phases, cannot be dismissed so lightly. This work got under way more slowly than the absolutely essential "community work," but rapidly gained momentum until today it is the most powerful and impressive side of most mill villages.



Medical Clinic at Riverside and Dan River Cotton Mills Co.

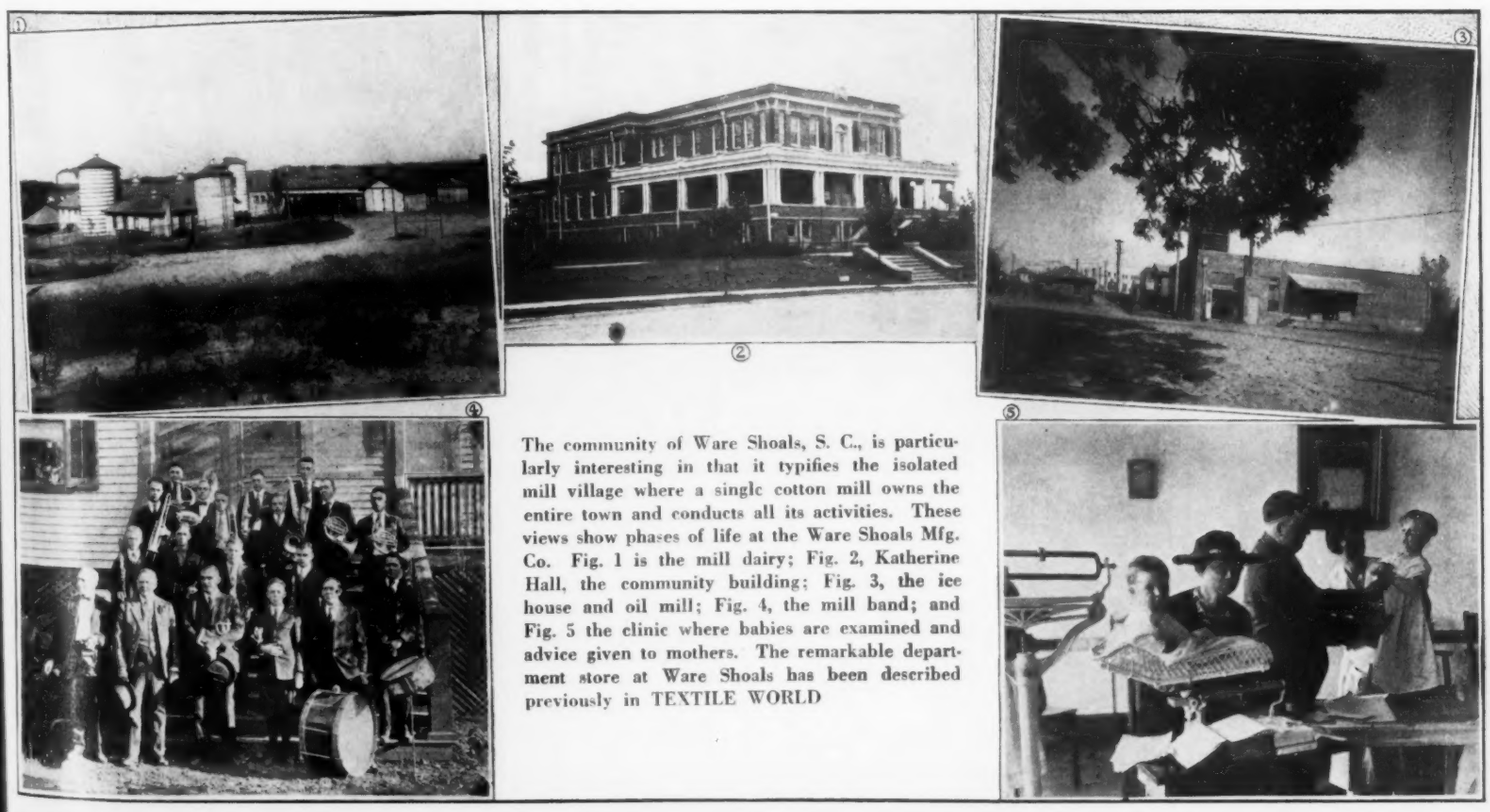
But a school was not necessary in order to attract workers to a plant. Most of the mountain folk had had no schooling and certainly did not inquire into the educational facilities in a community before deciding to locate there. On the contrary, considerable pressure had to be brought to bear at first in order to influence the workers to send their children to the schools. And certainly it is doubtful if operatives refrained from moving to another mill because they liked the schools and teachers in their own locality. The school can hardly be classed as a magnet—a preventive against labor turnover.

What then was the impulse behind this educational work? Undoubtedly there was a certain sense of moral obligation on the part of many manufacturers. The employes were in their hands; lived in their houses; depended on them for everything; had no town organization; could not float bond issues for school building. Consequently the conscientious mill man felt it was up to him to give his people their chance. Then, too, there were probably men of particularly broad vision who realized that ignorance on the part of his workers was a liability to the mill, not an asset.

But this is not a conclusive explanation. It might explain the establishment of routine grade school work for the correction of illiteracy and for training in the "three r's." But it does not explain the extensive school systems which include grades through the high school, advanced vocational education, and opportunities for college preparation. Here we are getting into what might be termed dangerous ground. The writer knows that many manufacturers are wondering if they are educating their employes beyond their jobs and storing up future trouble for themselves—but still they keep on with greater and even greater educational programs.

Why?

The writer can only give his personal opinion, which is that this job of directing people's lives started as a necessity, gradually became at least as interesting to the employer as the business of cotton manufacture, and that today the production of better men and women is as much on the minds of southern mill men as the production of better goods. This is not said lightly, or sentimentally, but is a firm conviction based on per-



The community of Ware Shoals, S. C., is particularly interesting in that it typifies the isolated mill village where a single cotton mill owns the entire town and conducts all its activities. These views show phases of life at the Ware Shoals Mfg. Co. Fig. 1 is the mill dairy; Fig. 2, Katherine Hall, the community building; Fig. 3, the ice house and oil mill; Fig. 4, the mill band; and Fig. 5 the clinic where babies are examined and advice given to mothers. The remarkable department store at Ware Shoals has been described previously in TEXTILE WORLD

sonal observation and contact. Incidentally that one discovery stands out in the forefront of all the impressions the writer received down South, and made his trip worth while.

Placing Workers on Their Own

The third great step in southern industrial relations is rather futuristic in nature. It concerns a problem which is very much in southern mill men's minds at present, namely the inculcation of self-reliance in the operatives, and the establishment of all employe service plans on a sound economic basis.

The southern industry is necessarily paternalistic to a certain degree. The people live in the millowners' houses, turn to them for all their needs, and look to them for relief when times are hard and trouble is encountered. The employers are always ready to meet these demands but they cannot help realizing that the continuance of such a system does not make for the establishment of a self-reliant, resourceful citizenship.

Then, too, the renting of houses at ridiculous figures and the practice of giving light, water and sewerage gratis necessitate the carrying of a huge village investment which is not only unprofitable, but on the contrary is an actual and heavy burden on the operating machinery. It is true that the differential is absorbed more or less completely in the lower wage ruling in the South, but here, too, there is room for misunderstanding. Many employes appreciate the fact that the living facilities they receive must be counted as wages, but others not so well-informed see only the lower wage side of the question. In other words ammunition is provided for agitators, and furthermore the varying nature of these compensatory factors makes wage comparisons difficult in different sections of the South—to say nothing of the chance for useless arguments about northern vs. southern conditions.

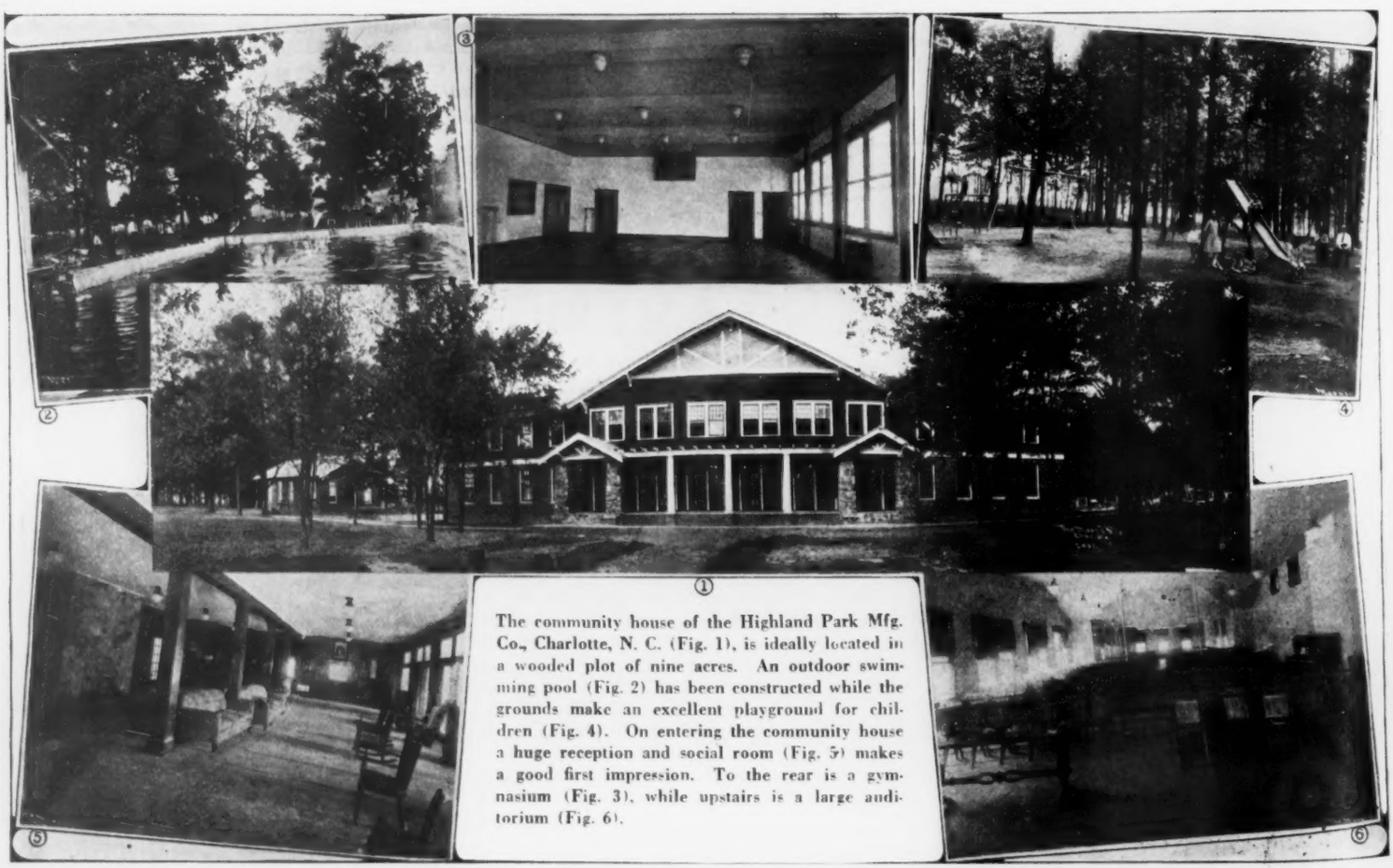
With these thoughts in mind, the writer took particular care to sound out a large number of southern manufacturers as to their attitude toward the nominal rentals now in force. Practically without exception, they agreed that it would be to the best interests of employers and operatives if the mill village could be made a self-sustaining proposition. They pointed out, however, that the development of the nominal rental had been a logical one. In the early days of the industry, a four-room house cost only $500 to $600 to build, and rent of 25 cents per room per week was not so far out of line. Construction costs advanced, however, until today such a house often costs upwards of $2,500. But with advancing costs came the difficulty of holding the organization together, particularly during war time, and the raising of rents was hardly feasible.

Then, too, more complete facilities were provided as the needs arose, and the modern village, with its water, light, sewerage, paved streets, schools, etc., represents a far different investment from the early mill town.

While all agree that some step should be taken whereby rents cover the interest on capital and the cost of maintenance, the difficulty of starting such a movement is appreciated. No one manufacturer can play a lone hand in this respect. The competition of other mills with nominal rentals would be too severe, even though he raised his wages in proportion. Here the problem is a psychological one and must be considered as such.

It is possible to note today a gradual trend toward the policy of making village activities self-supporting. In nearly all cases, admission is charged for moving-picture entertainments and often this revenue helps to maintain the community house to a certain degree. Membership in Y. M. C. A.'s carries annual dues; music lessons are often charged for; classes in domestic science are required to supply

Type of Girlhood Which Southern Cotton Mills Are Developing: Sunday School Class at Leaksville, N. C. (Carolina Cotton & Woolen Mills Co.)



The community house of the Highland Park Mfg. Co., Charlotte, N. C. (Fig. 1), is ideally located in a wooded plot of nine acres. An outdoor swimming pool (Fig. 2) has been constructed while the grounds make an excellent playground for children (Fig. 4). On entering the community house a huge reception and social room (Fig. 5) makes a good first impression. To the rear is a gymnasium (Fig. 3), while upstairs is a large auditorium (Fig. 6).

their own material; and in some cases house rent has been slightly increased so that new houses often carry a rental of 40c per room per week.

tendents feel that they know all their workers—often by first name—and that the office door is always open to operatives with grievances.

A Unique Feature in a Southern Mill Community Building: A Corner in the Museum at the Lyceum Building at Piedmont (S. C.) Mfg. Co. The Late Smith Rowell, Curator and Principal Contributor, Is Shown

In other words, the old established principle that a gift is never sufficiently appreciated and utilized, is being recognized by southern manufacturers and they are devoting their best thought to the problem of putting workers on their own. In the writer's opinion, the solution of this problem is one of the urgent needs in the South at the present time.

Employe Representation

The fourth and last important phase of southern industrial relations which impressed the writer was the attitude of manufacturers toward employe representation. Consideration of this question must be largely hypothetical because with a very few exceptions the mills in the South have done nothing along this line.

Their inaction is not due to lack of knowledge as to movements in many northern plants, but instead to an honest conviction that the close personal relationship existing between management and operatives makes any formal organization unnecessary. Presidents, managers and superintendents feel that they know all their workers—often by first name—and that the office door is always open to operatives with grievances.

Discussion of this attitude is dangerous because it involves the expression of the writer's personal opinion. He has found in many plants which he has investigated that this conviction of personal relationship, while entirely sincere, is not always founded on fact. Mill organizations grow faster than managers sometimes realize and unconsciously the intimacy between management and operatives dwindles. Sometimes it takes the activities of a labor agitator to bring home to an employer the lack of real knowledge which he and his workers have of each other.

After all, this seems to the writer the real issue at stake. As one manufacturer—a firm believer in representation—stated: "I prefer to treat with my people through representatives chosen by them than through delegates of disinterested unions. If organization is necessary, I want to do my own organizing."

Certain far-seeing manufacturers are thinking along these lines, and the writer, while holding no brief for any one method of establishing employe representation, will be greatly surprised if, in the next 10 or 20 years, there are not numerous examples in the South of some arrangement for dealing with employes in an organized way and for spreading, through proper channels, an appreciation of the economic principles underlying modern industry.

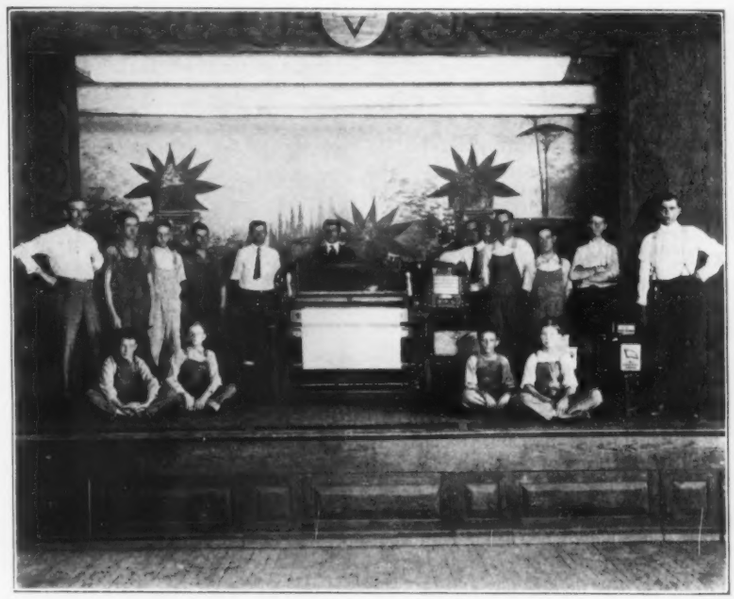
The Future

One receives so many impressions from a survey of a great industry like that under consideration, that it is difficult to classify and record them. The developments outlined above are only a few of the many interesting phases of southern mill village life.

This is an industrial relations story, but no mention of the South is complete without some reference to the growth in store for it. Statements in this connection are necessarily personal and relative. To the writer, this talk about the transplanting of the New England industry to the land of cotton seemed more or less "bunk." Nevertheless he could not fail to be impressed with the fact that all eyes are on the South, and to come to the conclusion that northern manufacturers considering enlargements of their plants, or companies planning new enterprises, will give more serious consideration to the advisability of locating new or branch mills in the South than has ever been true before. Coupled with this impression is the diversification of product which seems bound to come. The addition of weave sheds to existing spinning mills, the establishment of bleacheries and finishing plants and the extension of the knitting industry seem to be developments of the future which are as certain as any human probability can be.

The last twenty-five years have seen astounding changes in the southern industry. Great organizations have replaced small mills; model villages with all the comforts of city life have taken the place of rude settlements; a mill citizenship composed of physically and mentally alert men and women has succeeded a race of poverty-stricken illiterates, remnants of the devastating Civil War.

It may well be that these accomplishments, great as they were, will be dwarfed into insignificance by the progress of the next twenty-five years.



Demonstration of Vocational Education Work at Erlanger Cotton Mills Co., Lexington, N. C. Class Takes Down and Puts Up Loom for Benefit of Admiring Village Audience

Evolution of the Mill School: Fig. 1: First School at Judson Mills, Built 1913. Fig. 2: Second School, Built 1914. Fig. 3: School as It Is Today

Outlook For Textile Development of the South

An Industry in the Making—Its Early History and Some Observations on Characteristic and Distinctive Features—The Future Appears Bright for Continued Expansion and Diversification of the Industry in That Section—Wage Equivalents Paid by Southern Manufacturers

By *W. D. Adams**

THE growth of the textile industry in the South within the past two decades has been one of the outstanding features of American industrialism. Much has been written about it, with statistical summaries and detailed tabulations of figures, illustrating its remarkable evolution; so much so that it is felt that the brief space of this article might best be directed toward pointing out and touching upon—in an elementary and rather sketchy manner, however,—a few fundamental, characteristic and unique factors that have vitally contributed to its progress. This discussion will therefore treat of the early history of the industry in the South, its genesis and growth, with particular reference to certain causes and effects that have had much to do with its present status and future prospects.

Clear Understanding Essential

To properly appraise the situation, to appreciate what has already occurred and what may logically be expected to flow therefrom, it is manifestly essential that a clear and comprehensive understanding be had of the antecedents of the industry; how it came into being and thereafter, what distinctive influences have contributed to and featured its development.

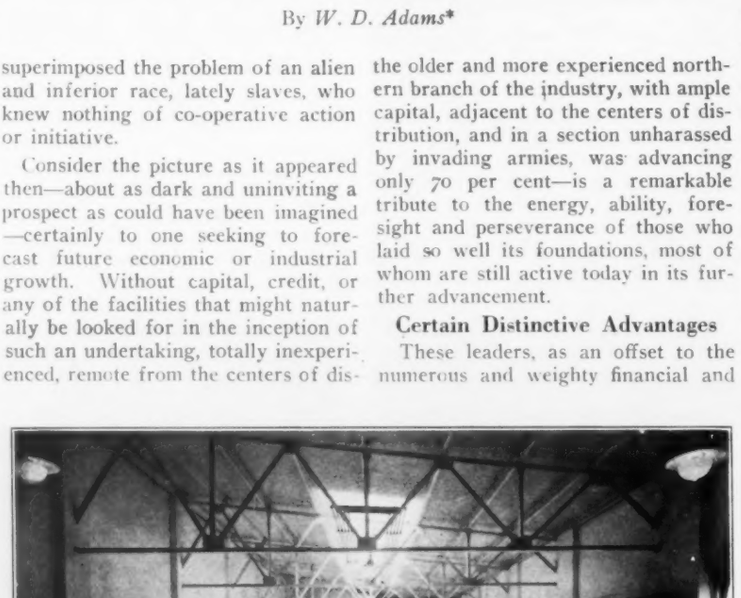
As is well known, cotton manufacturing in the South began in the years following the holocaust and reconstruction period that followed the War between the States. That war and the so-called "reconstruction" aftermath, had left the South devastated with lands bare and a reduced population impoverished; there were few industries worthy the name, and they were mostly bankrupt; transportation facilities were woefully inadequate, and even those people left behind from the four years of bitter struggle were untrained in the arts of manufacture and commerce, and on them had been superimposed the problem of an alien and inferior race, lately slaves, who knew nothing of co-operative action or initiative.

Consider the picture as it appeared then—about as dark and uninviting a prospect as could have been imagined—certainly to one seeking to forecast future economic or industrial growth. Without capital, credit, or any of the facilities that might naturally be looked for in the inception of such an undertaking, totally inexperienced, remote from the centers of distribution, wealth and manufacture, this section, in seeking to enter the arena of keen industrial warfare, essayed a task that involved apparently insuperable barriers.

It was just this condition confronting southern leaders when they sought to bring into being the infant textile industry. That it grew under their direction from an insignificant aggregate of 687,000 spindles in 1880 to a grand total of almost 16,000,000 in 1922—a gain of 2172 per cent, while the older and more experienced northern branch of the industry, with ample capital, adjacent to the centers of distribution, and in a section unharassed by invading armies, was advancing only 70 per cent—is a remarkable tribute to the energy, ability, foresight and perseverance of those who laid so well its foundations, most of whom are still active today in its further advancement.

Certain Distinctive Advantages

These leaders, as an offset to the numerous and weighty financial and other handicaps, however, counted certain distinctive and notable economic advantages. Their labor supply was ample, and inherently the best on earth, of pure Anglo-Saxon blood, capable of high development, accustomed to honest and diligent toil, and 100 per cent native-born. The sources of raw material were likewise near at hand, with abundant water powers susceptible of cheap development and easy utilization. The climate in the Piedmont country was healthful and invigorating, land was abundant and cheap, and taxes, generally speaking, reasonable. But above all, the mill managers and mill people were of the same blood, holding the same ideals and inspired by the same ambitions, thus making for cordial and close relations. These early pioneers had another advantage, namely, the example and experience of the northern branch of the industry, their achievements and mistakes; and it is significant that then as now, a critical and keen analysis was given the solution of all problems previously arising in the guidance of their own efforts. They were thus enabled to avoid some of the pitfalls that might have otherwise seriously crippled their efforts.



Particularly Fine Type of Swimming Pool in Y. M. C. A. at Proximity Mfg. Co., Greensboro, N. C.

The inspiration of the early development in the South was occasioned by several circumstances, chief among which was a keen local pride, with the necessity of utilizing those natural resources, so abundant and so close at hand. This local pride was shared not only by those who conceived the enterprises and furnished the limited capital and credit necessary, but by the people who toiled as well. Class distinctions—between management and men, or capital and labor, as the term came later to be emphasized—never had a place in the early industry. It was a case of "one for all" and "all for one" and this condition has continued in large measure to the present day.

Early Mills Small and Scattered

As indicated, southern mills developed "from the ground up" so to speak. There was no foundation existing for them to build on, and hence they had to start at the very beginning. Since the labor element was of paramount concern and there were no large cities to draw from, it had to be assembled from the country and trained; and mills were established in small segregated units, widely scattered. Homes had to be built, and along with the houses went schools, churches, streets, waterworks, lighting and sewerage

The Park-Like Effect Shown Here Is Achieved at Chadwick-Hoskins Mill No. 2, Charlotte, N. C.

* Secretary-Treasurer, The American Cotton Manufacturers Association, Charlotte, N. C.

systems, recreational facilities, etc.—all furnished by the mill companies.

This made it imperative for the mills to purchase large tracts of land, and hence the majority were located outside the corporate limits of towns and cities. This likewise made it economically necessary for the mill executives to reside contiguous to the properties they operated. Mill owners and operatives therefore knew one another; there was never any difficulty for workers to reach the responsible head on matters of common concern; the problems of one were the problems of the other; and thus this relationship continued. Constant effort was put forth by the early executives to promote those who showed special aptitude, and today many of the present leaders in the industry are those who have come up from the ranks. The early managers of mill properties—and the same condition exists today—were not simply "hired" executives employed to run the plants, but rather were substantial stockholders, and in many instances, owned the controlling interests in the properties. Absentee ownership and operation were things unheard of in the industry.

Labor in the early mills was recruited exclusively from the rural districts close at hand. The plants were small and such as to give employment to only a limited number. The people, therefore, were all acquainted the one with the other, had belonged to the same churches, had gone to the same schools, bound together, many of them, by ties of blood or marriage—a condition making for ideal beginnings. The average mill numbered less than 10,000 spindles; indeed, the majority were 5000 spindles and less. Even today, while there are some big units, the average mill in the South numbers little more than 15,000 spindles to the plant.

New Cycle Begins

The infant industry prospered, and as enlargements were contemplated, or new mills built, managers were forced to look farther afield for their help; and just here entered that source of labor which has been the principal reservoir ever since—the mountain districts of the Southern Appalachian plateau. This period of growth—a new cycle, so to speak—was characterized by a gradual drift of people from the mountains to the foothills, the fact being significant but natural that families of the same general locality followed other families to nearby mill settlements; and this class consciousness was continued to an even more intensive degree than formerly.

The mills offered many advantages to which these native mountain people had never been accustomed. Superior homes in which to live, good schools—then not as much appreciated as later—excellent churches; and wages and living conditions far in advance of anything before known by them. Coming from the valleys and coves of the mountains where it was difficult to glean a livelihood from the soil, and where opportunities for social intercourse were hardly worthy the name, it was only natural that their response was ready and their appreciation keen for the facilities offered.

Operative's Cottage at Arcade Cotton Mills, Rock Hill, S. C.

The Child Labor Problem

To understand the labor situation in the South, and certain problems flowing therefrom, notably, the child labor question, it is essential that the environment and conditions obtaining both before and after this gradual movement took place be held in mind. As stated before, these mountain people were of pure Anglo-Saxon blood, they had long been accustomed to diligent and honest labor, and all the members of the families worked. Toil was not for the father and older sons alone, but every member of the family fireside had his allotted tasks to perform. Again, in the mountain districts, school facilities had always been limited, and there was little appreciation for anything more than the proverbial "three R'S—readin', 'ritin' and 'rithmetic."

This brought on the problem of getting the children out of the mills and into the schools, and the task was a most difficult one until the necessary legislative steps were secured. It is a fact that in the early days the children would not, even as now, as a rule, go to school of their own initiative, and parents were not disposed to compel them. They then either had to loaf about their homes or on the streets, or work at simple tasks in the mills. Many conscientious mill men, confronted with this situation, took the lesser of the two evils and gave employment to them, but never did they cease in their efforts to provide a practical solution, recognizing that child labor as a rule was exceedingly expensive, and in the long run would be fatal to efficient operations. They consistently and progressively fought for child labor laws coupled with compulsory school attendance; and with a growing appreciation on the part of the parents of the advantages of good school training, the child labor problem is now rapidly being solved. It is a fact that today the mill schools in the textile communities are among the best in the South, and far superior to the average obtaining in the general country districts.

Much more might be written of other characteristic features but space does not admit, nor is it possible to treat certain correlative items. This is enough to show, however, just how the village factor which included the above-mentioned constituent elements, entered into the early scheme of things, and how important it came to be. In fact, it is well to observe in this connection that much of the misapprehension heretofore existing in the public mind, and among many supposedly well-informed authorities, has been due, either to ignorance of the part played by this factor in southern mill development, or to a lack of comprehension of elementary and collateral features accompany it. Any analysis of the situation must accord this vital factor its due and proper place.

The village life had its bearing on not only the labor but the capital element as well. As above indicated, practically all southern mills now have and always have had their villages, which are just as much a part of their plant as the mill buildings proper and machinery, with consequent outlays for streets, schools, churches, recreational facilities, lights, waterworks, sewerage, etc. In fact, it has been estimated that from one-fourth to one-third of the total cost of southern mills, is tied up in village investment.

These houses closely adjacent to the mills, have been and are today, rented to the operatives at an average weekly rental of 25c. a room per week, including free lights, waterworks and sewerage. Thus, a six-room house, costing, in addition to the land, from $1,600.00 to $3,000.00, commands a weekly rental of $1.50 or $6.00 a month, or $72.00 a year—an amount insufficient to pay for the water, lights and sewerage, to say nothing of interest on the investment, depreciation, insurance, upkeep, etc. In other words, the village outlay, approximating, as stated, in many cases as much as one-third of the total investment, is not only non-producing, but an actual burden upon the remaining two-thirds capital invested in producing machinery, etc. The effect of this is to serve as a distinct disadvantage in times of normal or good business, but it has its advantage in dull times, when business is scarce. Practically all southern mills afford free medical and dental examination and support, either wholly or in part, such buildings as Y. M. C. A.'s, Y. W. C. A.'s, community houses, etc.

Picturesque Approach to Wampum Cotton Mills, Lincolnton, N. C.

All support schools, churches, recreational centers, and other betterments, for the purpose of fostering and continuing those close relations already mentioned.

Wage Equivalents

These welfare facilities, since they so materially affect the cost of living, have a decided bearing on the wage question, when comparisons are made with relative compensation paid in other sections where these advantages are not available. The question has been raised from time to time: "Why do not the mill people own their own homes?"

This same inquiry has been put to the mill people themselves, and their universal reply has been: "Why so? We get our houses for a dollar and a half a week, with water, lights and sewerage; have no insurance to pay; no upkeep or other incidental expenses of maintenance and if a better job offers elsewhere, we can pick up and move, and not have a house and lot on our hands. If we bought it, we could probably get it at cost, which would be from $1,600 to $3,000, but we figure that we are making money by not owning our houses." And from their viewpoint there is much common sense in the reply.

This statement, which is so often heard, directs attention to a tendency or trait that is characteristic of many southern textile mill workers, and one that offers a problem for which mill owners have been long seeking a solution. This is their inclination to move from one locality to another, not from a desire to better their condition, for there is little if any difference in wages or living conditions in the centers from which they come and where they go, but rather out of a spirit of adventure, a desire to move about, to visit other communities and surroundings, and see what is going on. Coming out of the mountains or from rural districts, where opportunities for social or other intercourse have been limited, and into a section where mills are located within short distances of one another, and where the advantages are very similar one mill with another this visiting habit is very manifest. There are usually jobs available wherever they may go, and having no established ties to hold them at one place, they shift from one mill center to another.

Efforts of mill owners to correct this so-called "labor turnover" by making home life as attractive as possible, with good schools, churches, etc., by bonuses for continuous service, by establishing institutions for savings, etc., have heretofore been only partially successful, and the problem is one to which much thought is now being given by forward-looking manufacturers. So long as the mills afford practically free house rent and other facilities, and all of them do it, by force of established custom, or until a new generation comes along, this problem will prove difficult of solution.

The oft-repeated statement that southern mills, by owning their villages, tend to paternalism, is refuted by the logic of the situation itself. It is safe to state that the mills would like to be rid of their village burden, for in spite of the compensating advantages, after all it is a heavy handicap, just how great, only those who have wrestled with the situation know. However, southern operatives, generally speaking, appreciate these advantages, and the experience is by no means uncommon where people, moving outside, return with the statement: "We could not live, even with the slightly higher money wage, because we had to rent our own houses, pay extra for lights, water and sewerage, fuel was expensive and everything else so dear that we found we were much better off where we came from."

It has been figured that the money equivalent of these special facilities afforded southern mill operatives, and not generally funished textile wokers elsewhere, amounts to $4 to $5 per operative per week. Some tabulations, however, carry this figure even higher.

Working Conditions

Southern mill owners have always emphasized the excellent working conditions obtaining in and about their properties. The industry being newer and more modern, is equipped with all the latest labor-saving devices, and the machinery is more nearly automatic or semi-automatic than that existing elsewhere. Also the mills are extraordinarily well lighted, heated and ventilated. By reason of the fact that the corporations own their villages, greater attention is paid to upkeep than would probably be the case were the houses individually owned. The same applies to the schools, streets and other facilities. Public health authorities, school boards and other outside agencies, today frequently refer to the mill centers as models of their kind, and superior to those obtaining elsewhere.

The ancient delusion that mill operatives are weak and anæmic, undersized and prone to fall victims to epidemics, has long been dissipated, for today vital statistics in southern mill centers compare favorably with those in other areas, and contrasted with the conditions that existed prior to the time the people entered the mills, the showing is really remarkable. In appearance and health, the children in the schools of southern mill villages, compare favorably with those elsewhere in the country. Southern executives invite the most critical investigations by fair and unprejudiced seekers after the truth, and it is worthy of note in this connection that within recent years, many outside investigations have gone far to correct the popular misunderstanding formerly existing.

New Houses at the Osage Mfg. Co., Bessemer City, N. C.

Hours of Labor

Much misapprehension obtains in the public mind as to the hours of work obtaining in southern mill centers. A careful compilation shows that the average work-week in the South is 55 hours, the usual workday being 10 hours, with 5 hours on Saturday. While it is true that only one southern state, namely, South Carolina, has a legal work-week of 55 hours, the records show that approximately three-fourths of the mills, even in those states where the 60-hour work-week is allowed, work only 55 hours. And when the situation is considered from the standpoint of the operative, the average 55-hour workweek in the South, is about equal to the slightly shorter work-week obtaining elsewhere, taking into account the time required for the average operative in other sections to get from his home to his place of work, the time actually consumed in the mill, and then the time required for his return. In the South, all the houses are immediately adjacent to the mills, and the 55 hours is approximately the total time engaged in service.

The Labor Union Movement

All of these aforementioned factors, which are typical and characteristic of the southern industry, constitute the best and most effective answer to the question as to why outside labor agitators have never been able to make substantial headway in the South. These outsiders coming in are confronted with conditions which they never before encountered, which, combined with the native good sense of the people they seek to approach, has made their task exceedingly dif-

New Homes for Operatives at Florence Mills, Forest City, N. C.

ficult of accomplishment. True, there have been sporadic outbreaks, but soon these local disturbances subsided of their own weight; and it is a commentary on the situation that among the strongest non-union centers are

New Type of Semi-Detached Apartment Houses in Village of Ware Shoals (S. C.) Mfg. Co. (Photo Made Before Construction Was Completed)

those places where the people have temporarily tried the unions, only later to discover that no substantial benefits were derived therefrom.

While it is always hazardous to attempt to forecast what may happen in the years to come, a consideration of these factors, and others which the brief space of this article does not admit of elaboration, will likewise afford some sort of answer to the inquiry as to whether or not union effort will be generally successful for a very long time, certainly not unless conditions change.

The universal attitude of present-day southern manufacturers is to give earnest heed to all practical betterment suggestions that may come from their own people, and wherever possible to meet them in all matters that are conducive to better conditions of work or livelihood, compatible with sound business practices. Wage increases and decreases have generally followed the state of trade, and constant effort is exerted by representative managers, to keep their more intelligent and influential operatives posted, as to general conditions in the industry. It is a fact, and not generally appreciated outside, that operatives in the South usually know whether the mill in which they are working, is making money or not. There seems to be some undercurrent of feeling, which quickly goes the rounds, and the mill people know how to gauge it with remarkable accuracy. Operatives follow the shipments and know whether or not the mill is running full; they also have access to other information and their deductions are usually correct.

The close contact existing between superintendents, overseers and executives on the one hand, and the people on the other, in the average small-sized plant, has doubtless much to do with this; and southern managers, daily in touch with their people, are, generally speaking, too intelligent to attempt cuts where conditions do not overwhelmingly justify them. In fact, wage reductions are the very last resource—which is doubtless true in other sections as well, and such measures are only resorted to, to prevent a complete cessation of all operations.

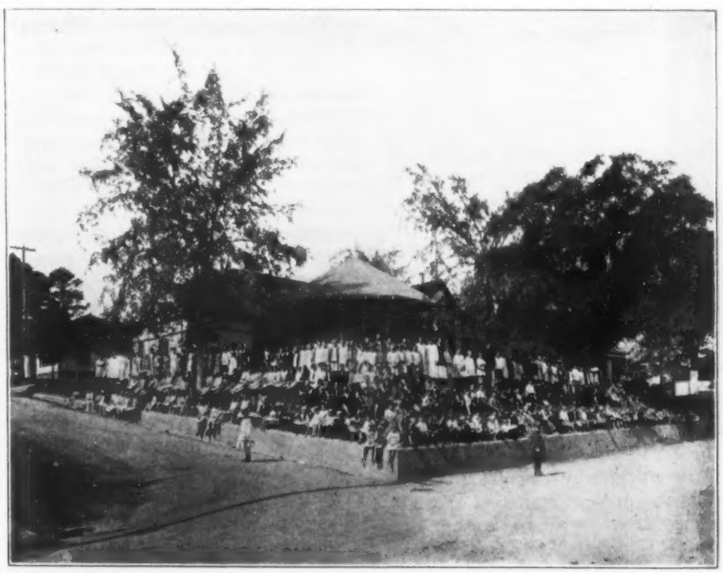
Management Responsibilities

Digressing somewhat, just here offers another practical problem, to which due consideration is seldom given. The average southern mill is a unit to itself. All the people residing in the village are dependent solely on the mill for their means of livelihood. When business is bad over a protracted period, and the market such as not to afford a profitable return on operations, southern mill executives cannot lock their doors, and say, "We will not run until business picks up." They have distinct obligations to those residing in their villages to provide employment sufficient for livelihood, at least. True, the obligation is a moral one, so to speak, but it is all the more imperative on that account, and is so recognized.

Conditions are such in the average southern mill center, that no other employment is possible when the mills shut down. A few might get odd jobs, and some might drift elsewhere, but in the South, when business is bad with the mills, it is poor everywhere. Hence, during the period of distressed business conditions in 1920, and again in the fall of 1921, and the spring of 1922, the vast majority of southern mills continued running, mostly part time, even at a loss, after they had filled their warehouses with unsold goods. These mills accepted orders at prices below the actual cost of manufacture, simply to provide employment for their people. This illustration is not cited for the purpose of self-commendation, or anything of that sort, but simply to give a slant on this phase of the situation. During this period, statements appeared that southern mills, by reason of cheap wages and lower costs, took the business, but this was not the real answer. Southern mills accepted orders and assumed heavy losses, because their operatives had to be fed and clothed, and not because they wanted the business, or would have operated at all except for the above reasons.

Southern mill people know by practical experience over periods of years that such things have been done, and will be done again, and this explains why such a sensible spirit obtains, which after all, is the best augury of the future. One would have to go a long way before he would find in American industry more common sense, good feeling, friendliness, plain human kindness—where "the sense of the essential quality of manhood takes away much of the sting of the inequality of fortune"—than among southern mill operatives. And southern mill owners have always been profoundly appreciative of this attitude, and today are doing all in their power to justify and prove themselves worthy of it. Hence the various undertakings making for the health, happiness, and general welfare of the people, the efforts to improve conditions, and to make southern mill centers the most attractive places in which to live; to afford opportunity for advancement and culture, and to teach by precept and practical example, the dignity of labor, and its consequent rewards.

The southern industry, manned and equipped as it is today and with a wealth of experience such as it has achieved of its own initiative, during the past two decades, looks to the future with renewed confidence. Its resources in raw materials are still amply adequate, its labor, trained, contented and happy, is fully employed and has never been more responsive to influences tending to promote better relations; more capital is available than can be utilized; transportation facilities are growing by leaps and bounds; additional enterprises are being built for finishing and otherwise processing the goods now being produced nearby; direct contact between the manufacturers and the consumers is being more and more generously established—these and other factors tend to confirm the belief among southern manufacturers, that with a continuation of the broad-gauged and keen-visioned policies of the past, they will have little or nothing to fear in the years to come, except a labor shortage of quantity if not of quality.



School and Pupils at the Langdale (Ala.) Mill of the West Point Mfg. Co.

Operatives' Homes at Alexander Mfg. Co., Forest City, N. C.

Cramerton: A Textile Town in the Making

Partial View of Cramerton, N. C. At Right of Railroad Station Are Stores, Office Building and One of the Churches

By a Member of the Staff

WHEN the visitor gets off the train at Cramerton, N. C., he soon forgets the business of cotton manufacture in which the Mays Mills, Inc., are primarily engaged, and becomes engrossed in the business of town-building, for the latter, in the opinion of the writer, is the real accomplishment of this corporation whose corporate name has recently been changed to Cramerton Mills, Inc. About eight miles above Gastonia, there is being developed a model textile community where not so many years ago there was nothing but scenery.

The term "model" is used advisedly because, in describing Cramerton, it must be remembered that this is not cited as a typical southern cotton mill town. It is more a pattern of the type of village which may be expected in that section in the future. There are other remarkable developments in the South but certainly none eclipses that of Mays Mills, Inc.

The term "is being developed" is also used advisedly because remarkable as the present status of the village may seem to the visitor, to the owners the work has only just begun. The vision of the present village of 2,000 people growing to a community of 10,000 is in the mind of Stuart W. Cramer, president and treasurer of the corporation. Nor is this entirely visionary because only recently it was announced that the Mays Mills, Inc., intended to build a weaving mill in addition to its spinning plant of over 55,000 spindles. This development alone will probably call for a doubling of the housing capacity of the village. Consequently this story must be regarded as futuristic in nature. It is as difficult to describe a growing town like Cramerton as it is to take a snapshot of a train in motion. By the time this is published, there will have been many changes in the village. Paving of streets will probably have been extended; new houses started; incomplete ones finished; and additional landscape work begun.

In making this statement, the writer is not guessing. He walked down the track a way with Mr. Cramer in the early part of December and heard the latter give brief instructions to his builder regarding the location of four new houses, and heard him speak of fifteen additional dwellings in one section of the town and twenty-five more in still another. He saw grading work under way on the sloping park which is being developed around the huge stand-pipe, and which is converting that ugly landmark into a thing of beauty. This one plan, minor as it may seem, is representative of the ideals of the builders of Cramerton. At the base of the stand-pipe is now a band-stand which is to be converted into a two-story recreation pavilion, the construction to resemble that of a lighthouse. The long grade around this is to be seeded and planted, and on either side of this park will be rows of trees to shut off the view of the backs of houses in the vicinity.

Principal Features of the Village

The importance of first impressions has been considered in the laying-out of Cramerton. Even the railroad station is artistic and would put to shame some of the wealthy towns in the vicinity of New York where tenement-like buildings and poorly kept streets often greet the newcomer. More noteworthy still is the substitute for the old gatehouse where so many mills receive salesmen, journalists and other distinguished people. Across from the station is a fine yellow, brick building with green-tile roof, erected at a cost of $100,000 and equipped with offices which give the lie to the apparent impression that the routine business of a mill must be conducted in dirty, glomy shacks.

Next to the office building is the Methodist church, also constructed by the mill, and a real architectural gem. Below the church is Bennett Hall, where the school teachers live and where the social life of the girls of the village centers.

Extending in both directions are attractively laid-out streets of operatives' houses, constructed so as to give an architectural homogeneity to the village and yet lacking that deadly sameness which often characterizes mill towns. Gardening is encouraged, and each front yard has its flower beds and carefully kept walk. The homes built recently are of course the most attractive ones, but the older dwellings are being revamped and are kept freshly painted. All have electric light, running water and sewer—even those in the colored section. For rent, upkeep, insurance, light, water, etc., the corporation collects 25 cents per room per week from the operatives!

The Mill School

In the center of the town are stores conducted by private individuals in buildings rented from the mill. Following a road leading back from the town, one passes the homes of mill executives and then reaches another community center, comprising the Presbyterian church, parsonage, and mill school.

The latter was erected and is maintained by the mill while the salaries of teachers are paid partly by the county and partly by the corporation. The theoretical ratio is 50-50 but as a matter of fact the mill shares more than half the expense.

The school comprises nine grades, and another, corresponding to the first year of high school, will probably be added next year. There are twelve teachers, and the student enrollment this year is between 450 and 500. The building itself is splendidly equipped and contains an auditorium seating about 800, where chapel is held each morning and where lectures, moving pictures, athletic association meetings and other activities are held in the evenings. Across from the school is an inn for both residents and transients.

Mill Dairy

One of the most unique features of the village is a dairy, chicken farm, and fruit orchard kept up by the mill. The products are sold to the operatives at or below cost. The dairy comprises about fifty cows and is entirely modern in its equipment and sanitary features. The orchard includes thousands of fruit trees.

The Spirit of the Village

Probably the first thought to come to the mind of the reader will be that all this sounds horribly paternalistic. Mr. Cramer admitted to the writer that the fundamental characteristics of the Southern cotton mill industry make a certain amount of paternalism inevitable but he himself is striving constantly to put his people on their own. This is probably one of the most difficult problems which confront him. He, in common with most other manufacturers, would like to get out of the house-renting business; an investment of $1,000,000 in a mill village which not only makes no profit but is an actual and very considerable loss, is not the sort of activity in which a business man likes to engage. But neither Mr. Cramer nor any other manufacturer can change existing conditions; the practice of paying part of the wages in the form of village facilities is universal in the South, and if a mill is to get workers it must follow this practice.

However, there are other ways in which self-reliance can be engendered, and Mr. Cramer is alive to these. First of all he has taken pains to make the operatives realize that the rent, light, water, etc., are not gratuities but merely a part of their pay. Then he has tried to keep out of their social and recreational activities as much as possible. He provides the facilities but expects them to work out their own programs. He has a personal objection to the organized activities of community workers as he believes they make things too easy for the employes and retard the development of initiative.

The writer, in walking about the

View of Mays Mills, Inc., and Part of Village, Cramerton, N. C.

village with Mr. Cramer, noticed that the latter knew personally all who passed and had some pleasant comment to make, generally about something in which the other was directly interested. But he also noted that there was no patronizing tone in Mr. Cramer's voice, and that the operatives and their children did not salute him fearfully as some great person far removed from them but spoke to him as to one of their best friends. Just a seemingly trivial observation such as this indicated a spirit of helpfulness rather than paternalism.

Same Comparisons

Probably the motive behind the building of Cramerton can best be revealed by the thoughtful analysis which Mr. Cramer sketched for the writer. After admitting that present conditions North and South are not comparable, he pointed out that some fifty years ago, the mill village up North was similar to that down South in that the houses were owned by the company, and rented for a nominal sum, and the workers were mostly Americans. But a change came about. Working and living conditions were unsatisfactory; machines in the mill were crowded and induced accidents; humidity was secured by blowing in live steam; and altogether the mills were not attractive places in which to work. The new generation of operatives did not want to enter the plants—and in fact their parents did not wish them to. As a result they went into other lines of work, and their places were filled by immigrants. The mills up North have since entirely changed conditions but the native-born Americans have not returned to them.

With this experience as an object-lesson, according to Mr. Cramer, the southern manufacturers have uppermost in their minds the problem of making the mills and villages sufficiently attractive, safe, and healthful to continue to hold the class of help they have at present. It is not philanthropy but fortunately it has a humanizing effect.

This does not mean that Mr. Cramer expects to eliminate labor turnover. He told the writer that efforts to sell homes to operatives were usually unsuccessful for two reasons: First, because this investment was far more expensive to them than the rent they now pay; and second, because they did not wish to be tied to a certain locality. He stated that the average labor turnover in the southern cotton mills is very high. He does not regard this as a bad sign, however. He knows that people are apt to call the southern workers "shiftless" because they drift around so much but he explained that this movement from one place to another is their way of finding adventure in life—of seeking their opportunities. He does not admire workers who live all their lives within a radius of a few miles; *that* class is, to his mind, "shiftless."

No, he does not hope to keep his people permanently in Cramerton but he does hope to make his mill and village so attractive that they will want to continue to be identified with the textile industry—and, when they have had their fill of adventure, will want to return to his community.

Unfortunately, the writer does not expect ever to write the complete story of the village of Cramerton. If its present spirit of growth persists, it will never be finished. But as the nucleus of a noteworthy development, it is worth both seeing and describing.

Exterior and Interior Views of an Operative's Cottage at Cannon Mfg. Co., Kannapolis, N. C., Which Hardly Bear Out Charges Recently Made by Labor Agitators That the Mill Houses Are Bare, Unfurnished "Shacks"

Educating Operatives for Jobs Higher Up

Process Being Carried Beyond the Danger Point at West Point Group of Mills—The School Is the Center of Community Life—Unique Plan of Developing Training Program—Economic Education Achieved Through Key Men as Channels—Mills Produce Many Technical Experts

By a Member of the Staff

"ARE you not educating your people to the point where they will no longer be content to work in your mills?" was a question put some time ago to George H. Lanier, vice-president and general manager of the West Point Mfg. Co. and Lanett Cotton Mills, and president of the Lanett Bleachery & Dye Works. Mr. Lanier admitted to the writer that he did not know how to answer the question.

And yet strangely enough the question really answers itself, because in this same process of education, carried to its logical conclusion, is found the solution to the problem of making the cotton mill an attractive place in which to work.

Probably if the educational work ended with the grades or the high school, there would be many pupils who would see in the mill only a monotonous mechanical job with little prospect for the future, and they would follow in the footsteps of their city cousins who rush from the schools into the white-collar jobs, sacrificing earning capacity and usefulness to the false goddess of dignity. But at West Point the regular school work is only the beginning. There has been built up a system of training, the results of which have demonstrated to all employes in the mills the fact that the machine is not an endpoint but a stepping-stone to bigger and better things. After all, it is just another illustration of the old adage that "a little knowledge is a dangerous thing." At West Point, the little has been made much—and the danger removed.

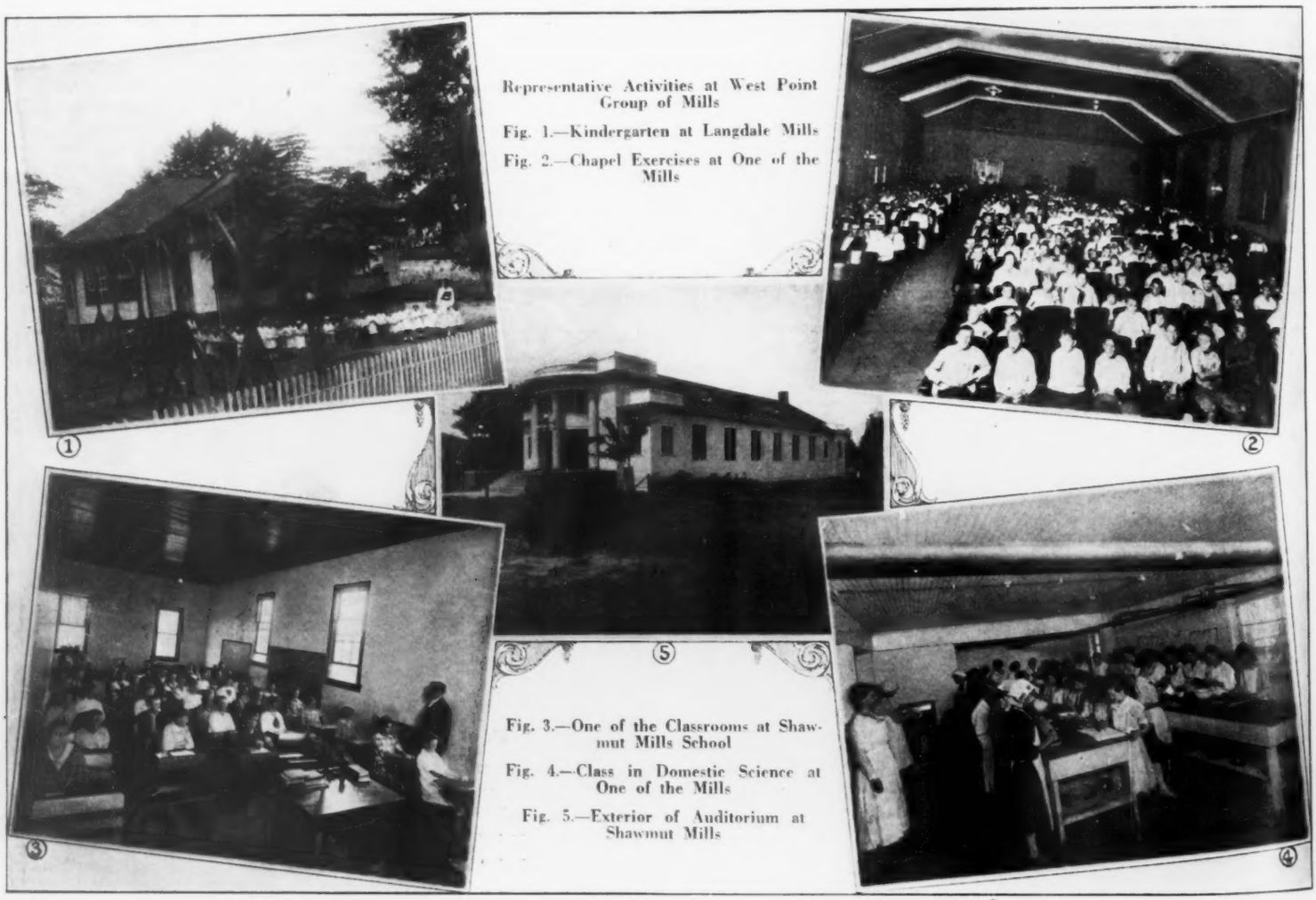
The School as the Center

This is not a "welfare" story; it is a business story. It is true that nothing has been left undone at West Point that would contribute in any way to proper living and working conditions. But little emphasis was placed on this phase of the community work in Mr. Lanier's talk with the writer. He regards the maintenance of the villages with their sanitation, light, water and sewerage as a moral obligation. Under the southern industrial system, his people do not of course own their homes; most of his villages are not even incorporated. Consequently the operatives do not float bond issues and build up town improvements as home-owners in incorporated villages are forced to do. The company regards this as its job—and does it. Thus is the ordinary "welfare" work dismissed.

In a way the school falls in the same class. The management feels just as much obliged to build schools and aid in their maintenance as it does to provide water and light. But it does not content itself with the establishment of grade schools which will permit the children to get sufficient education to meet state requirements so that they may go to work in the mills at the earliest legal age. Instead it has extended its system of education until every person has as good an opportunity to go to high school and enter college as have people in any city in the country. In a few words, the school has been made the center of each of the five villages, and its activities dominate the community.

This fact impresses itself upon the visitor as he goes "down the line" and visits the five villages which stretch out for nine miles below West Point. The latter city is where the general offices of the company are located. Crossing the state line and entering Alabama, the first village is Lanett, where are located the Lanett Cotton Mills and the Lanett Bleachery & Dye Works. Then follow in order the four mills of the West Point Mfg. Co., namely, Shawmut Mills, Langdale Mills, Fairfax Mills, and Riverdale Mills. Each is located in a self-contained community, with its school, community house, kindergarten, etc. Of the five schools, three include complete high school work. In these three, there are six grades in the grade school, three grades in

(*Continued on page 269*)



Representative Activities at West Point Group of Mills

Fig. 1.—Kindergarten at Langdale Mills

Fig. 2.—Chapel Exercises at One of the Mills

Fig. 3.—One of the Classrooms at Shawmut Mills School

Fig. 4.—Class in Domestic Science at One of the Mills

Fig. 5.—Exterior of Auditorium at Shawmut Mills

Progress by Generations at Victor-Monaghan Co.

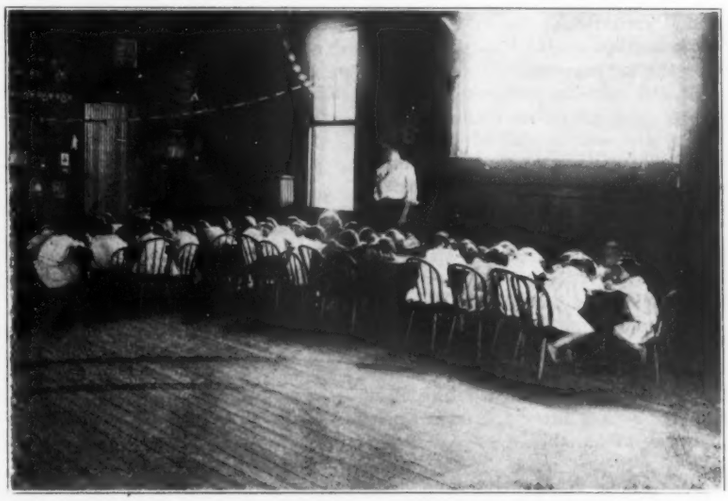
Comparison of Status of Employes at Monaghan Plant, in Greenville, with Those at Walhalla Plant, at Base of Mountains, Presents Picture of Human Development Achieved by Company—Grade School Work and Vocational Education at Monaghan Are Typical Examples of Employe Training Activities

By a Member of the Staff

IF a stranger in the South wished to get an impression of the work the cotton mills are doing in building up a higher type of citizenship, and did not wish to travel around to any extent, he could probably secure a better bird's eye view by visiting the eight plants of the Victor-Monaghan Co. than from the mills of any other one company. For these plants are not centralized in one locality, drawing one class of help and tackling one general community problem. Instead they are scattered geographically and draw people of widely varying degrees of development.

Through the courtesy of W. E. Beattie, president of the company, and L. P. Hollis, director of community activities, the writer was enabled to compare the status of the mill folk at the Monaghan plant, just outside the city limits of Greenville, S. C., with that of the people at the Walhalla plant, just at the base of the mountains. As Mr. Hollis expressed it, the latter are about one generation behind those at the Monaghan plant, and certainly it would be conservative to state that the Walhalla folks are one generation ahead of the mountaineers just above, who represent the human raw material of the southern cotton industry.

This deduction that the Monaghan employes are at least two generations further advanced than the agriculturists in the mountain districts may be a little intangible, but after all it expresses fairly well the method of procedure in the South. For the manufacturers realize that the adults from the hills cannot be changed radically. They may live in better homes in the mill towns, learn the basic principles of sanitation, and possibly lose their illiteracy but the alteration is more or less a surface one. The real subject is the child, and as each generation comes along, fundamental and marked improvement should and does result.



Getting Them While They're Young. Kindergarten at One of the Mills of the Victor-Monaghan Co.

The Monaghan School

Consequently the school is, to a very large extent, the key to the situation. From the kindergarten on up to the last grade, each classroom may be considered a different manufacturing operation in this interesting industry of moulding human lives.

The writer visited each class in the school at the Monaghan plant, observed the children, listened to recitations, and talked with the teachers. Of the many impressions he carried away, two were most prominent: First, that the educational activities at Monaghan were as intelligently and scientifically directed as at any city school in the country; and second, that the inherent adaptability of the youngsters was about on a par with the average in any walk of life. It is dangerous to pursue this latter thought any further because it leads into the much-debated and never-settled problem of the relative effects of heredity and environment. However a visitor to the Monaghan school will find that the pupils do about as well as children of equal age anywhere, and that possibly the only handicap to their complete development is conditions at home. This is a further explanation of the method of counting progress by generations.

The aim at the school has been to provide a balanced ration of education. The day is divided into periods and classes move from room to room according to schedule. In the course of a day, a pupil in the grades receives instruction in the "three R's," in art, in dramatics, and in manual training. In addition he has one period of calisthenics, and, if he desires, may obtain lessons in piano. The boys learn woodwork while the girls are instructed in the various branches of domestic science. Naturally the study of cotton and its manufacture is emphasized in the curriculum, and a groundwork is laid for an intelligent appreciation of the dignity attached to the industry which so many of the pupils will enter.

While the mental development goes on, the physical progress of the pupils is watched carefully. The boys and girls are weighed periodically and the parents advised if under-weight is noted, and remedies suggested.

Vocational Education

The school and its teachers constitute one part of the mill organization which always works over time. First of all there are night classes in ele-

(*Continued on page 275*)

School at Victor Plant of Victor-Monaghan Co., Greer, S. C.

Y. M. C. A. at Victor Plant of Victor-Monaghan Co., Greer, S. C.

Employes and City Approve Cone Activities

Attitude of Outsiders a Good Index to Success of Industrial Relations in the Mills—Y. M. C. A. Buildings at Proximity and White Oak Are Outstanding Examples—Numerous Community Activities Center Around These Institutions

By a Member of the Staff

A BARBER in a Greensboro (N. C.) hotel is responsible for part of this story. He it was who gave the writer his first lead to an account of industrial relations at the Cone mills in that city. This particular barber had been a weaver in his younger days and his favorite line of conversation is contrasting conditions under which he worked with those existing today at the Greensboro mills. Between razor strokes he told the writer how he used to work from six in the morning until six at night for the daily wage of $1.32 and graphically described the home surroundings which this sum permitted and the feeling which he had towards his employers.

Then he likes to talk about what the Cones are doing. His story of the Y. M. C. A. activities, mill schools, Christmas parties and bonuses, free ice, coal at cost, and other conspicuous features at those mills would make about as good press agent material as the manufacturers could desire.

Nor is the opinion of the barber to be ignored. The writer has found that the attitude of a community toward an industry located in its midst is a very valuable index to the status of employer-employe relations in that industry. It is undoubtedly true that the relation of the community to the mill has been generally overlooked and that many a manufacturer will find it considerably easier to get his workers sold on his policies if he first sells the townspeople.

At any rate the testimonial of the barber and of other civilians with whom the writer talked while at Greensboro indicated that the Cones enjoyed the good will not only of their employes but of the city itself. What these people said was borne out by a visit to the Proximity Mfg. Co. Proximity Print Works, White Oak Cotton Mills and Revolution Cotton Mills. The first three are all in the Proximity Mfg. Co. group, while the fourth is a separate company. In the three villages, Proximity, White Oak and Revolution, there are from 8,000 to 10,000 inhabitants.

Y. M. C. A. Development

Probably the outstanding feature of community life in these mills is the development of Y. M. C. A. activities. The two Y. M. C. A. buildings in Proximity and White Oak are probably as fine institutions of this character as can be found in any industrial community in the country. The two together cost about $500,000 and are almost ideally equipped. The swimming pool in each building is a particular feature and would do credit to any athletic club in the country.

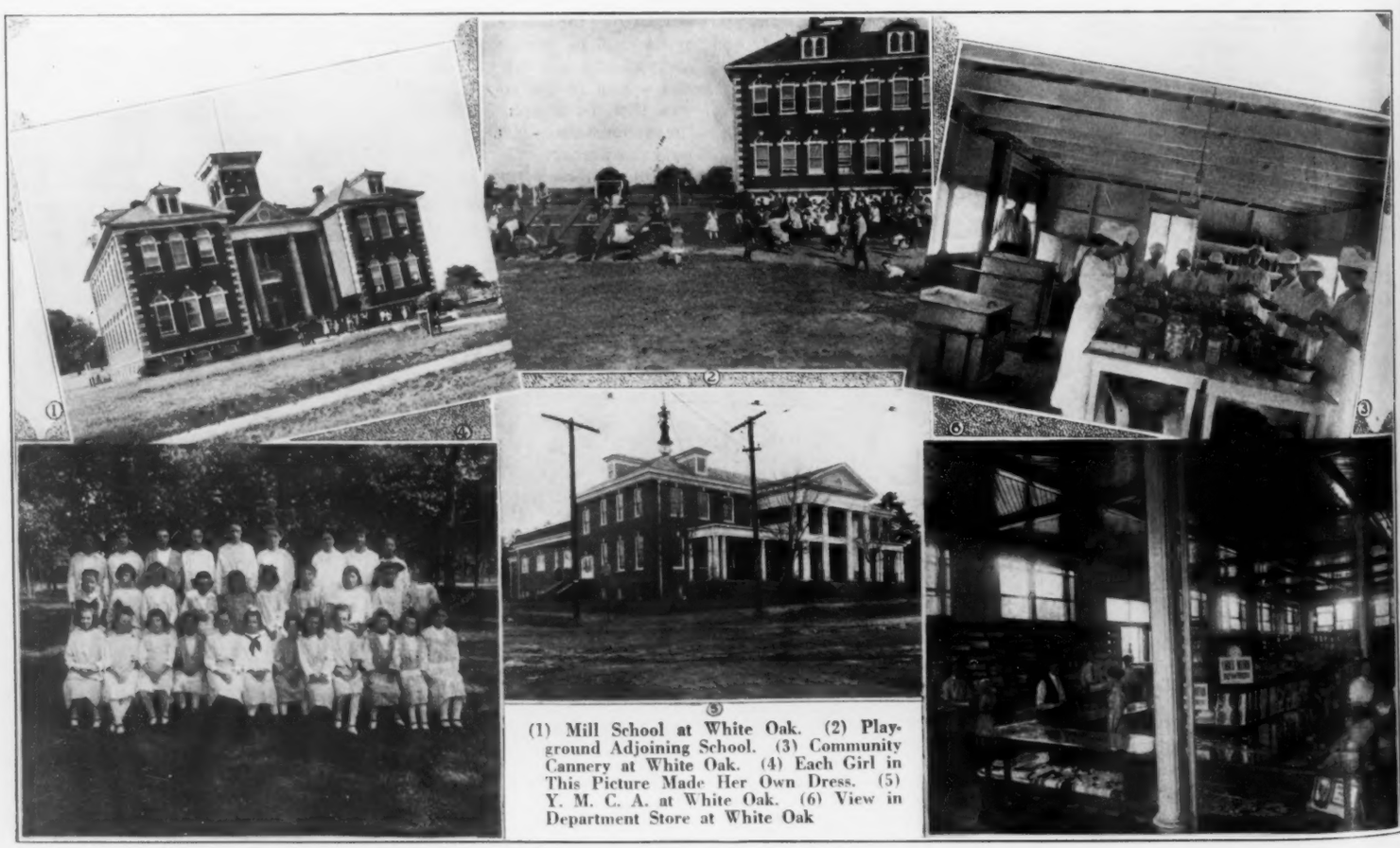
However, the Y. M. C. A.'s are not noteworthy solely from a physical standpoint. These beautiful buildings would be valueless if they were not used. Life at Proximity and White Oak is a round of social, recreational and educational activities of which the Y. M. C. A. is the center. There are gym classes, under expert direction, for boys, girls and grown-ups; classes in home making, including cooking, sewing, preserving, millinery, etc., and comprising mother's club meetings at the various homes; classes for illiterates; dinner parties for the various groups, and other features too numerous to mention. Each of the two Y. M. C. A.'s is divided into two sections so that the boys and girls may carry on their activities independently. Schedules for the swimming pool and showers are arranged so that all get an equal chance.

Mill Schools

The schools in connection with the Cone mills have an enrollment of over 2,000 pupils. These schools include a unique feature in the form of a separate negro institution.

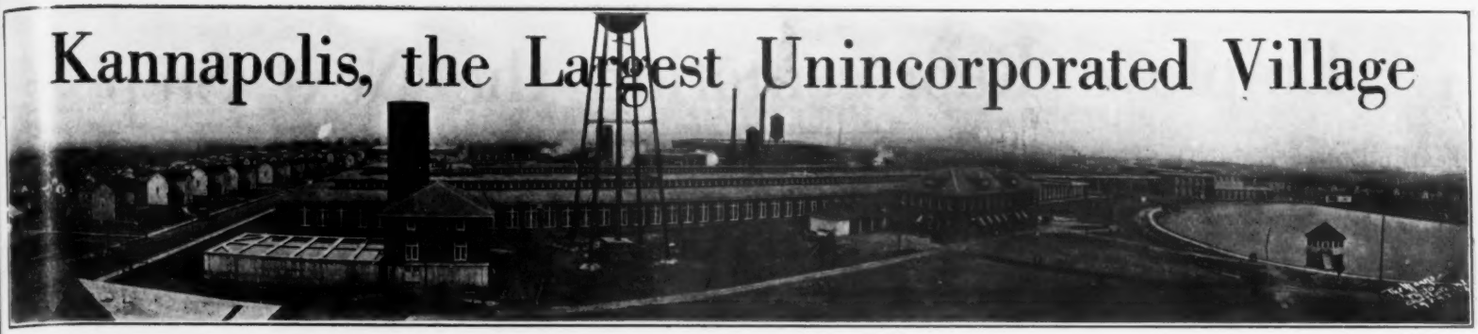
Among other features of community interest are a system of district nursing which keeps strict tabs on the public health; a community cannery for use of women in the village; a complete department store owned by the mill, although operated by a company formed for this purpose. A savings bank in White Oak village has 800 depositors with total accounts of $225,000—a good index to the thrift of the workers.

Nor are the villages standing still. New houses of a fine type are being constructed right along; activities of all sorts are increasing; in short the mills are doing all in their power to live up to the reputation which they have established for themselves in the city of Greensboro.



(1) Mill School at White Oak. (2) Playground Adjoining School. (3) Community Cannery at White Oak. (4) Each Girl in This Picture Made Her Own Dress. (5) Y. M. C. A. at White Oak. (6) View in Department Store at White Oak

Kannapolis, the Largest Unincorporated Village



By *A Member of the Staff*

ONE of the interesting facts learned by a visitor to the plant of the Cannon Mfg. Co., Kannapolis, N. C., is that the company produces enough towels each year to supply every man, woman and child in the United States with one apiece. One also learns that this annual output would encircle the world twice. Illuminating as these facts are, there are other phases of life at Kannapolis that are even more vital.

In the first place the town, which is the largest unincorporated village in the world, stands as a monument to the energy and foresight of the late James W. Cannon, founder of the company. During his interesting lifetime, he thus added another and a very important industrial community to the South.

In the second place Kannapolis, in common with Concord and Charlotte, experienced the invasion by northern labor agitators which resulted in strikes and threatened to alter the hitherto harmonious relations between employers and employes. Consequently the visitor is naturally interested to know how strongly the union is now entrenched in that section and what possibility there is of future trouble.

The answer seems to be that the strikes in that section were in a way a test of strength for the entire South and that there is little likelihood of a similar occurrence in the near future. Practically all that the workers at Kannapolis have left to show for their participation in the trouble is the memory of several wageless weeks and of union dues paid to organizers who subsequently disappeared.

It is difficult to get many permanent converts to a belief in the selfishness of employers when on all sides there exists evidence to the contrary. Stories of bare and unsanitary company houses and of vile boarding houses cannot have a lasting appeal to employes who live in the type of house seen in Kannapolis or in Mary Ella Hall, the dormitory building.

Y. M. C. A. Developments

Christmas of 1922 saw the completion of an important addition to the Y. M. C. A. at Kannapolis, while Christmas of this year will witness an even more important change. The alteration thus far completed constituted the adding of a large wing, including an auditorium, with a seating capacity of 1,100, beneath which are a gymnasium, shower rooms, game rooms, etc. During this year the old building will be replaced by a $100,000 structure which is to be started in March. The completed building will have class rooms, swimming pool, etc., as well as a kitchen and dining room.

The Y. M. C. A. which is under the management of E. J. Sharp, executive secretary, has been particularly successful as an active force in the mill life. Every attempt is made to place its activities on a self-supporting basis and the revenue from the movies particularly helps to carry along other features. A membership fee of $2 per year is charged to employes while town people pay $3 per year. The population of the town is about 8,000, of whom practically 4,000 are males and probably only 3,000 of age for Y. M. C. A. membership. The enrollment of 1900 in the Y. M. is indicative of the high percentage support which the organization receives.

The principle on which Mr. Sharp works is that the most important requirement is the building up of clean bodies and the supplying of clean amusements; in other words, creating the right atmosphere and letting the people shape their own religious life. Preaching as such is entirely subordinated as it is felt that the best sermon is valueless unless its recipients are sufficiently alive, mentally and physically, to appreciate it.

Fig. 1.—Mary Ella Hall, Home for Employes of Cannon Mfg. Co., Kannapolis, N. C. Fig. 2.—Corner of Upper Porch. Fig. 3.—Office. Fig. 4.—Dining Room. Fig. 5.—One of the Bed Rooms. Fig. 6.—Back Hall

Employe Representation the Next Step

Textile Industry Has Done Little in Installing Plans for Giving Workers Opportunity for Expression—Description of a Plan Tried in 25 Plants in Other Industries—Challenge to Employers to "Make Goods Plentiful and Men Dear" in 1923

By *John Calder*

THE TEXTILE WORLD in successive Annual Reviews has noted the progress of representation in some of the few textile establishments using it. Only half a dozen of these are in New England states and there are but a score in all—chiefly silk and hosiery mills and bleacheries. The fact is that the manufacturing and finishing of cotton, woolen and other fabrics has remained practically untouched by this forward movement in industrial relations begun in 1918 and, in January, 1923, in operation in over 700 non-textile plants. Though experience has shown that it is not less applicable to one industry than to another, the northern textile enterprises in particular are struggling with disabling economic burdens with little attempt to enlist the intelligence and cooperation of their wage-earners through more democratic relations.

The significance and hopefulness of the movement for society and labor relations is not only in new forms of contact but in the fact that it replaces the current skilful opportunism, economic strategy and militancy on both sides by a liberal statesmanship and enlightened industrial policy on the employer's part which invite and induce cooperation by the worker.

What such a policy might justifiably embrace in our day has been suggested by three previous articles dealing with the worker's mind and the duty of capital to management and the wage earner respectively. However limited the employer's program may be at first, the chief requisite is the new attitude with steps which seek to give it competent expression and to have it appreciated.

Principles of Existing Plans

For four years the writer has been engaged professionally in examining the merits and working of various plans. He has also been personally responsible for framing and installing successful employe representation in twenty-five plants in various industries employing 30,000 people in groups ranging from 250 to 7,000 workers each.

Such groups contained large numbers of people of foreign birth, many of them non-English speaking. They compared very closely with the labor used in the textile industry.

The experience obtained may be summarized concisely by dwelling upon the principles followed in different plans rather than upon details, for the latter are rightly varied to suit the situation at each plant. In some cases the plans in use are simply the formal coordination of social services already existing, such as safety, health, thrift, education, clubs, pensions, profit-sharing, etc., which were popularized through securing the responsible and representative participation of the employes. Such cooperation is all gain but it fails to emphasize the economic interests of the worker *which are first in his mind and esteem.*

In a small minority of existing plans the ultra-conservative course just outlined was substituted by a genuine but highly sentimentalized conception of the employment relation which a few plant owners and managements had been induced to adopt as a creed. Some of them found it difficult to live up to such principles and others were unable to get the latter adequately appreciated by workers of the mental and moral status employed in their plants. In this case the employer's intention was highly praiseworthy but the worker must creep before he walks on such a path and is usually strictly self-regarding at first.

A still smaller group of plans represent the well-considered and firmly held ideals of the single controlling owner of a business who, as he feels disposed, can use his power and privilege to express his liberal sentiments towards labor in ways not possible where the directors of a concern must consult the opinions and rights of a considerable body of stockholders. This latter type obtains great publicity and its ultra-liberal practice inhibits some owners who should make a modest start of their own.

The question naturally arises: Can we steer clear of a timid conservatism which cannot trust labor to make its own mistakes and of an unappreciated and sometimes impracticable liberality which is also liable to be misunderstood? Can we provide acceptable means in the plant itself for the self-expression of the worker without relying upon an altruism in management which is rare, and may lack authority, and without inviting or expecting moral miracles from the man in the street? The answer from the writer's experience is—yes! We *can* organize around the worker's economic interests pure and simple, obtain a willing response, await the development of broader vision and interests and help towards that end.

What Can Be Done

In such cases which represent the present situation in the great majority of plants, both with representation and needing it, a very simple plan suffices; one which involves neither a futile debating society revolving around welfare services, nor an "industrial democracy" in which employes without educational environment can talk and vote by themselves about anything whatever, but can ensure nothing. Under the reasonable plan mentioned thirty thousand employes in twenty-five plants advised by the writer are functioning harmoniously today and did so through all the deflation period.

Plants running on this basis in their representation use practically identical rules under the plan and, though many of the employes have other affiliations, they have never once invoked outside assistance because of their failure to obtain what they felt to be justice in the Assembly of their own plant.

The plan concentrates first and foremost upon the economic relationship of the employe and it ties neither him nor his employer up to any financial obligations or expectations outside of or additional to those implied in the ordinary wage contract.

Under it the executive authority and responsibility rest wholly in the hands of the management which nevertheless proposes to consult, and actually does consult and is consulted by, the employes through the Assembly about all changes in working conditions proposed by either. The management as a trustee for capital may and does take all emergency measures on its own responsibility about labor conditions when quick action in the interest of the business is called for. These are found to be rarely necessary and they may be the subject of inquiry by the Assembly equally with those specifically referred to it. The same holds good of labor whose rights are in no way inhibited by a voluntary suspension of them permitting Assembly action.

The management accepts all unanimous decisions of the joint-committees on individual cases and is guided by the two-thirds vote of the Joint Assembly in which are seated equal numbers from each side. The management representatives are drawn from the grade of overseer and second hand and office assistants. Higher officials may appear on request or by request on special matters but the voting representation is maintained of the above grade so that the wage earner may feel under no restraint.

How It Is Done

These joint representatives function on details through three main joint committees on one or another of which every Assembly member has a place. The standing committees are (1) On Rules, Procedure, and Elections, (2) On Interpretation and Disputed Plant Rulings, and (3) On Changes in Working Conditions. Committee No. 2, dealing in the first instance with the details of personal and small group issues only, is subdivided into suitable divisional committees according to the size of the plant. Special and temporary committees are appointed from time to time as the Assembly finds necessary.

Fig. 1 shows graphically the general type of the Assembly organization for plants from 250 to 500 employes—in this case one of several tanneries in Massachusetts using the plan. One of the twenty-five plants using the plan, a large Illinois packing house, has about 7,000 employes and an Assembly of sixty in all. It has naturally more committee subdivision and its organization is illustrated in Fig. 3. Fig. 2 shows the form which the plan takes when applied to a textile establishment, but each situation should receive special analysis and appropriate action and counsel.

Under the plan each of the voting divisions of a plant—the size being determined on a sliding scale given in the plan—elects one employe representative and has one appointed management representative. All matters of difference must first be referred for settlement to the regular plant executives concerned and following this the two representatives, without deciding powers, however, may exert their good offices, but all employes are entitled to a committee hearing if they desire one.

Committee No. 2 dealing with personal and small group cases can effect a decision binding alike upon employer and employe provided it is unanimous. Committee No. 1 on Rules and Procedure conducts all elections and passes upon all references regarding the privileges, conduct of members, and the rules of Assembly procedure. Committee No. 3 on Changes in Working Conditions has referred to it by the Assembly on the initiative of the employer or employes or both for investigation and recommendation all proposals to change any existing practice regarding wages, hours, conveniences of all kinds and any other conditions arising out of the employment relation and affecting a body of workers. This committee can effect no decisions and may not handle personal cases or grievances which go to Committee No. 2.

The Heart of the Matter

Employers should bear in mind that, whether unionism is much in evidence or not, labor has innate solidarity. The herd instinct is a natural

one. The ardent union wage-earner often over-emphasizing issues, careless about accuracy in detail and greatly lacking accurate information about the facts of his job and about his employer, does not greatly misrepresent the heart's desire of the less obvious non-union man. The latter is often quiescent when he is by no means satisfied either with his unionized fellow-workers or with his employer. The average employe earnestly desires, as we have seen, to *count* where his interests are in question, and the fact that he sometimes does not choose in his personal situation to entrust these interests to a union should not be made too much of by his employer. "Closed" or "open" shop is not the real controversy. *It is closed or open hearts;* it is a question of a new spirit on both sides; not of crooked economics in capitalism or of "poor cards" in the worker's hands.

The Fact of the Matter

For several decades the employer in the textile industry has been satisfied through organization to minimize the statutory requirements upon the trade and to "get-by" in regard to labor's organized demands through collective agreements or disagreements in which his own wage-earners had often little or no part. The result has been in many plants almost complete detachment of the individual wage-earner from any keen interest in the prosperity of the concern which furnishes him a living, and an attempt by labor to standardize conditions without regard to the varying facts.

Employers equally with union leaders have neglected the feelings and the progressive education at the plant of the people under any one mill management but this has long been regarded in the non-textile manufactures as poor policy and bad business and is giving way to the frankest industrial relations, often with the happiest results. We *must* restore some joy to the job.

A Challenge to the Millowner

It is not an easy task to overcome the cumulative handicap in the textile industry, but it is not an impossible one and it should be an immediate order of business among the employers who can vizualize what the present "war of positions" aided by legislative "blocs" and their resulting blockades means to northern textile operators in particular.

In the writer's personal experience the twenty-five plants cited and many others, through genuinely democratic employes' representation with no implication of finality about its form, have made a good beginning for a new industrial day. They have done so without having to surrender any of the executive liberties necessary for the efficient operation of capitalism, and without predicating any immediate moral miracles, as a few have done under the guidance of industrial evangelists. Wise employers have not made too heavy a draft upon human nature as we know it. They have also taken care to let their workers "make their own mistakes," after affording them every opportunity for information. The workers, both union and non-union, on their part have shown *no disposition to make serious mistakes.*

Such positive steps under painstaking expert guidance to increase understanding and intelligent action among our mill wage-earners are imperative, for prejudice and ignorance are capable of any folly. There is no escape from the consequences of persistent attempts to divide more than "all-there-is" or from the worker's angry reaction to sheer economic determinism. "To make goods plentiful and men dear" should be the program of 1923 and it is capitalism's move.

Fig. 1
NATIONAL CALFSKIN CO.
Tanners, Peabody, Mass.
CHART OF EMPLOYES REPRESENTATIVE ASSEMBLY

Total Wage-Earners, about 400
There is One Elected Employe Representative and One Appointed Management Representative for about Each Forty-five Wage-Earners and Every Member is Alloted to one of the Committees.
Assembly Chairman without Voting Power.
Assembly Secretary without Voting Power.

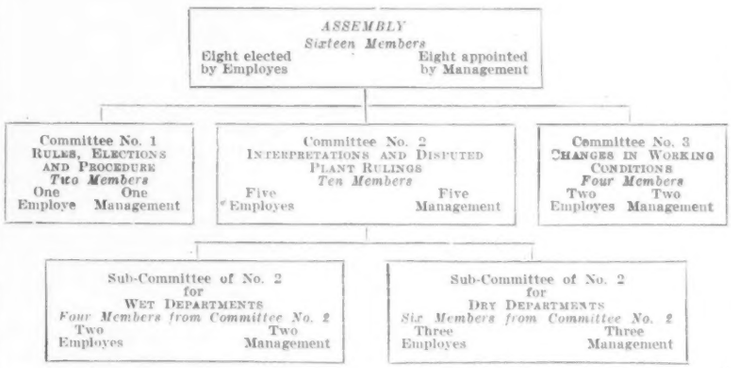


Fig. 2
100,000 SPINDLE COLORED COTTON GOODS MILL
(Average Count 40s)
CHART OF EMPLOYES REPRESENTATIVE ASSEMBLY

There is One Elected Employe Representative and One Appointed Management Representative for about Each Eighty of the 835 total Wage-Earners. The Ten Management Members Are Selected from the Sixteen Overseers and Second Hands and the Office Force of Twelve Persons.

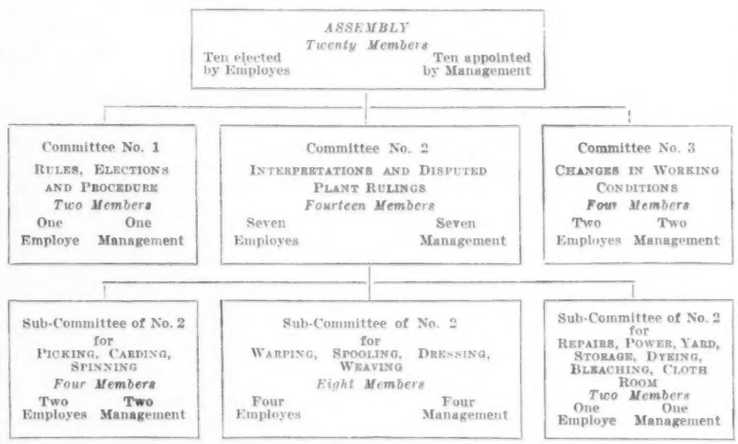
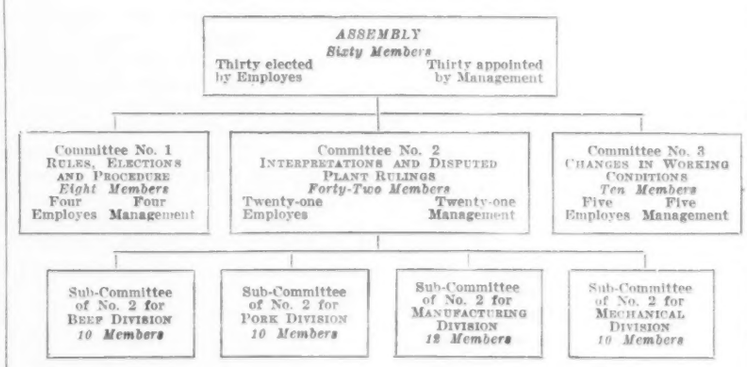


Fig. 3
SWIFT & COMPANY
Packers, U.S.A.
CHART OF EMPLOYES REPRESENTATIVE ASSEMBLY AT CHICAGO PLANT EMPLOYING ABOUT 6600 WAGE-EARNERS.



These Sub-Committees are composed of equal numbers of Employe and Management Representatives and every Member of standing Committee No. 2 is on one or other of the Sub-Committees

German Cotton Industry

Development in 1922 Was Subject to Depreciation of Mark

By *Henry L. Geissel*

The development of the German cotton industry during the year 1922 was entirely subject to the influence of the incessant depreciation of the mark, the result of which was an almost continuous rise in prices. At the beginning of the year there prevailed a general uncertainty about the further development of the economical situation which, however, soon gave way to lively merchandising, the latter increasing in the same measure as the depreciation continued.

The total collapse of the German currency, which began in July, continuing during the next few months in an ever rising progression, caused a considerable change in the situation. Most of the manufacturers and wholesale dealers began calculating and invoicing only in a standard foreign currency, cutting the mark entirely out of their calculations. For the largest number of manufacturers it had become impossible to raise the means for the purchase of the foreign raw materials, which is best shown by the figures of the cotton stocks at Bremen:

Date	Bales
Jan. 2, 1914	492,000
Dec. 30, 1921	316,800
March 31, 1922	293,074
June 30, 1922	223,571
Sept. 29, 1922	103,202
Oct. 20, 1922	74,913
Nov. 24, 1922	103,702
Dec. 22, 1922	109,214

The decrease in figures to 75,000 bales on October 20th was due to a new law regarding foreign exchanges which nearly stopped the entire import trade for a while.

Activity Decreased

The activity of the spinning and weaving mills largely decreased by the end of the year. A small part of them still have orders on hand for the next few months, but the outlook is generally considered as very dark. The most severe question is that of the purchase of foreign raw materials. Foreign credits for raw material have largely been taken up in Holland, England and the United States. Foreign competition was also largely felt on the German market.

"The Most Important Thing in Industry Is—"

" Hard Work," Says the Superintendent—" Technically Trained Men," Says the Agent—" Employe Representation," Says the Apostle of Democracy—" A Steady Job," Says Our Wandering Friend—" The Most Important Thing—" Says Jack Card—But Go on with the Story

By *Jack Card*

HE went into the mill as a bobbin boy when he was nine years old. When we met him, he had been in the game for 35 years. He had no schooling as such, but through inherent inquisitiveness he had acquired a broad fund of information far more extensive and valuable than that possessed by most university graduates. He had had no "pull" but through a natural appetite for work and an ability to absorb hard knocks, he had risen to the position of general superintendent of a very important chain of cotton mills.

"The most important thing in industry is hard work," he told us. "If the day ever comes when every child is taught to do something useful with its hands so that the habit of working will be just as automatic as the process of opening one's mouth as a

spoonful of soup approaches—then, and then only, will the industrial problem be solved. People have too much leisure nowadays. When they worked 68 hours a week, they saved more money, did more gardening and were generally happier than they are today. The world is forgetting how to work."

The College Man Speaks

Then there was the agent of a great cotton mill who at 22 had packed his college sheepskin away with other family treasures and had taken a job as a weaver. An X-ray mind which could see through a problem and could get down to fundamentals without any preliminary exploration fitted in particularly well with the type of organization in which he found himself. The management had for years followed the practice of promoting men within its own ranks and was always on the lookout for promising material. Nothing could stop him—and in ten years he was pretty well on the top of the heap.

"The most important thing in industry," he confided to us, "is the development of technically trained men. Turn loose an army of high school and college graduates and let them run the mills on scientifically sound principles."

The Apostle of Democracy

Not to mention our good friend whose interesting life had taken him over most of the ruts of the road and who had known the depths of poverty and the heights of affluence.

"The most important thing in industry," he explained, "is granting the workers a voice in the adjustment of working and wage conditions. The United States of America represent the most successful experiment in history. Why not apply its basic principle to industry?"

An Assured Job

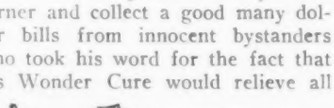
Finally we might refer to a wandering friend of ours who has worked at as many different jobs as any man we know and who has studied the needs of workers in various branches of trade.

"The most important thing in industry," he remarked during a brief pause in his restless life, "is assuring the workers steady employment. I do not want it myself because I have no family ties and have enough money to carry me along. But the man with five kids and no money in the bank asks only one thing: A guarantee for tomorrow."

One Important Thing

We have a few more incidents up our sleeve but we think we have produced enough to let our gentle reader into the secret of the most important thing in industry. We can't be outdone by the friends we quoted above so we'll advance as our own theory the idea that one of the most important things in industry is less tendency to apply sugar coated remedies to all ailments.

There was a day when a spellbinder could stop a cart at any street corner and collect a good many dollar bills from innocent bystanders who took his word for the fact that his Wonder Cure would relieve all



the ills to which human flesh is heir —from warts to sciatica. But patent medicines with a few dozen diseases printed on the labels are difficult to merchandise nowadays — unless, of course, the percentage happens to be high enough.

In the same way general panaceas for industrial ills are gradually falling into disrepute. If we were an industrial expert, we'd insist on a careful diagnosis, and give strict instructions as to dose, probable symptoms, and specific effects before we passed any thoughts along to the patient. Possibly the only claim we'd make for our prescription would be that it would make the workers a little more careful in their selection of profanity; then if any other results were achieved, they'd be so much velvet and our stock would rise in proportion.

In the First Person

Just here, we shall have to indulge in a few personalities. Those readers who dislike the personal touch in literature may consider it a fictional autobiography.

During our mill days, we were almost socialistic in beliefs. We had never known much about "how the other half lives" and when we ran across that important fraction, saw their tenements, knew something of their struggles, we became very bitter against the employers who, we thought, were responsible. Of course we were very young and youth joins hands with "isms." We had some remarkable theories about the coming of the industrial millennium and needed little urging to expound them.

When our older friends would shake their heads wisely and remark that some day we would come to realize that conservatism is not always the ogre we had pictured it, we would ascribe their attitude to the mental retrogression which accompanies age.

Then we drifted into the journalistic game where our job threw us into contact with manufacturers. After getting their point of view the initial reaction was a rebound from our radical position to one almost reactionary in nature. Unions came to be synonymous with evil.

And then we started to work back to a middle position where we could stand with both feet on the ground and our head below the clouds, so that we might have an unobstructed view of both sides.

Hand in hand with this mental change went a literary transition. At the heights of our radicalism and our conservatism, respectively, our pen was very prolific. We thought we knew the problem of industrial relations and its solution. It was our duty to tell it to the world.

But as thought landmarks became less clearly defined and the mist of conflicting ideas gathered, we found it more and more difficult to locate definite opinions and pass them on with any degree of conviction. Whereas at one stage of our development we could become wildly enthusiastic over a new plan of industrial relations and could regard it as the long looked for solution, there grew up such a fine crop of mental "ifs" and "buts" that nothing seemed to be unqualifiedly good. From this literary dearth, we are (unfortunately for our readers) slowly recuperating.

What We Are Trying to Say

On glancing back over what we have written thus far, we must admit this introduction rather scares us. It sounds like the prelude to one of the most important pronunciamentos on the subject of industrial relations ever handed down. Whereas we're not even now quite sure what we are going to say.

However, to take the plunge, it's something like this: The mental uncertainty through which we have passed has indicated to us that we started to think too much along the lines of individual and often unimportant propositions, and that, when we tried to apply these ideas to specific cases we found more exceptions than otherwise. For example, a plan of employe representation, academically perfect, might be operating beautifully in one plant while in others it was either a lukewarm success or an expensive failure. Attempts to analyze the reasons for these exceptions were usually hopeless, because we were starting the wrong end to.

In the same way, we believe that many manufacturers have wasted time trying to find out why certain plans haven't worked rather than determining in advance what was needed and why.

Where This Thought Leads

Concentrated thought will, we are sure, convince the mill man that, while it is true the worker needs a good home, social interests, a steady job, and a voice in the shaping of conditions under which he works, none of these things alone will make him a good worker, nor will the combination give him the right attitude toward his job—which, after all, is essential to proper industrial relations.

Why not? Because, in our opinion, the entire educational system in this country, and probably elsewhere, has emphasized more and more the importance of commercial life and has subordinated the dignity of industrial work.

Take the average graduate from grammar school. There is only one possible future for him: A job in an office. It may pay him only $15 a week while a plumber is making upwards of $5 a day but his whole training has been along commercial lines. More important still, the caste system which has been built up imposes upon him the choice between becoming a "white collar man" and staying respectable, or taking up a trade and becoming a social outcast.

We recall the case of a young friend of ours whose father started in life as a carpenter and became in time an important contractor. He gave his son the advantages of an education. On completion of his high school course the boy faced this problem. His athletic achievements had brought him popularity and had thrown him into contact with people of a far different type from his parents. Naturally, it seemed essential to him that he should continue to

be "one of the crowd" and consequently a "respectable" job was necessary. His father had no use for another office man and was sufficiently hard-headed and conscientious to refuse the boy a partnership in the firm until the latter had earned it by hard work.

The alternative seemed to be a job in some New York office. But first the boy thought about it a great deal and talked it over with some of his older friends. Finally he had the good sense to realize that, with his natural inclination for manual labor and with the opportunity of carrying on his father's business after he had earned his spurs, it was up to him to learn the trade. So he donned overalls, took a sunrise train every morning and a late train home at night, sloughed off much of his previous

midnight life and became, through his own efforts, a member of a successful contracting firm.

Another Case

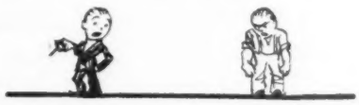
Then there is the case of the self-made mill agent mentioned earlier in our story. His academic course at college had fitted him for nothing. He had made enough friends to get him city jobs of a sort but fortunately he could see into the future. He knew he would make only a mediocre office man while his mechanical bent and his love of creating things made a factory job the only real solution. But he was of no use to a mill except as a common worker. And that's the job he took.

The Answer

These are the exceptions. How about the others who possibly lack the will power or the vision to think the thing through at the start? What is done for them? Nothing.

As a result, every clerical job has scores of applicants; machines beg for men; native-born Americans are "unemployed"; foreigners—some desirable but many not—man the manufacturing plants; and, worst of all, the factory or mill job is regarded as a degradation and the man on that job feels that he is one of the under-dogs of our national life.

A complete answer to this problem is of course beyond our humble powers. But as a start it might be stated that our idea of the most important thing in industry is a complete and radical revision of the fundamentals of our educational system. If the day ever comes when every grammar school or high school or college graduate knows a trade—whether it be plumbing or carpentering or weaving—the army of unemployed or underpaid clerks will be decreased, while the body of industrial workers will slowly change into a self-respecting, intelligent group, whose status will be on a par with that of their co-workers in the mill office. The anomaly of a shipping clerk in a factory drawing a salary of $20 a week, and looking with scorn on a mechanic earning $5 or more a day, who, in turn, con-



templates the clerk with fierce envy and hatred, will disappear.

What Can Be Done?

Such a millennium cannot be reached this year or next or twenty-five years from now. But a start must be made and we can't imagine any better job for those men in the industry who have made their pile and who have leisure time on their hands than to fight, individually and collectively, for a more intelligent use of the vast funds spent—or rather misspent—on public education.

The results will be surprising. The doubters might visit some of the southern cotton mills where vocational education classes are in force. The relatively few who attend these are always prominent on the list of promotions and will be found to regard their work in the mill with a new interest and a new enthusiasm. But this is only a drop in the bucket. There is no reason why every schoolboy, whether his father was a weaver or a president, should not be given this same opportunity to learn a useful and actually "respectable" trade.

Building up a body of "contented" workers through employe service work is laudable. Unfortunately, however, it will continue to be more or less futile unless our schools teach each new generation of workers that a job in a mill or factory requires preliminary training and offers opportunities large enough really to content the average American citizen and not merely the illiterate alien.

Postscript

If this effusion does nothing more than draw out more opinions on "the most important thing in industry," it will be worth — to us at least — the space we have given to it. For we can't imagine anything more important in industry than finding out what the most important thing in industry really is.

Associations—and the Trade Dispute

Machinery for Settling Differences Between Buyer and Seller and Possible Developments

By *J. J. Nevins**

RECOGNIZING that trade disputes, like the poor, will always be with us, trade associations in all industries, whether they regard it as a major activity or merely incidental to other functions, all have more or less machinery available for adjustment.

Disputes between members and those from whom they buy and between members and those to whom they sell, appear to be inevitable. Some of them grow out of honest differences of opinion, some involve pure questions of law, others questions of fact, while still others are not honest. They come out of an effort, deliberate or otherwise, on the part of one to impose upon or embarrass the other. Whatever their nature they occur from day to day without end and it is not difficult to see how a small army of secretaries and committee-men, not to mention lawyers, are kept going in an effort to keep up with them. Whatever the underlying motive, these trade disputes divide sharply into two classes: (1) those involving questions of law and (2) those that do not.

As to the first the situation is simple. Whatever may be one's disposition toward law and lawyers and courts, there is only one thing to do with a dispute that clearly hinges on a question of law and that is—consult a lawyer—take it to the court—that institution of these United States set up to interpret and administer the law.

As to other disputes, the ones that do not involve a question of law, but a question of fact, of terms, of interpretation, of understanding, of veracity, there are almost as many ways of dealing with them as there is variety of issue.

Association's Activities

In the woolen and worsted industry the institution set up for this work is the American Association of Woolen and Worsted Manufacturers. It was organized for that purpose. It is set down as one of its first principles to elevate the morale of the trade, to improve the relations between its members and those from whom they buy and those to whom they sell.

Out of its years of experience, it has come to several definite conclusions. It has found, for example, that in fairness and equity it must be as ready to entertain controversies brought against its members as those brought in their behalf. This has been a matter of growth. For many years the Association declined to receive disputes brought against members, but experience has demonstrated that that was a wholly provincial viewpoint. An organization cannot expect the customers of its members to accept its good offices against them if they cannot in turn come to that organization for assistance if they believe themselves damaged.

Honest Disputes and Others

Experience with trade disputes also makes clear that part from difference of issue the disputes divide again into honest disputes and the other kind. When the issue is between a buyer and seller, each of whom sincerely believes he is right, there is no real difficulty. It remains only to determine upon the particular adjustment machinery to be employed. Correspondence through the Secretary's office frequently disposes of the matter. Or, the regular form of arbitration is suggested and accepted. The submission and forms are prepared by the Secretary, correspondence between the principals and arbitrators initiated; in short, the whole arbitration is engineered by the Association office with a minimum of inconvenience and annoyance to those concerned.

If arbitration appears unnecessary, reference to the Committee on Trade Disputes is suggested. This committee consists of five members sitting at a time who dispassionately hear both the buyer and seller and suggest an equitable method of adjustment. Its suggestions are not binding as are the findings of arbitrators, but the process is more expeditious and less involved.

If the dispute is simply a merchandise difficulty it is referred to the Mutual Adjustment Bureau of the Cloth and Garment Trades, a lengthy title but necessary to convey the intent and nature of the institution. The Bureau was organized jointly by buyers and sellers to be a kind of Supreme Court to which the age-old difference between buyer and seller as to whether merchandise delivered does or does not constitute a proper delivery could be referred. It is not necessary to say more in emphasizing its absolute impartiality than to record that out of 750 cases passed upon by the Bureau, 218 were decided in favor of the seller, 237 in favor of the buyer and 295 resulted in compromise; that is to say, certain pieces were credited to the seller and certain pieces to the buyer. It simply is not possible to invent more efficient or impartial machinery for disposing of merchandise disputes than is found in the Mutual Adjustment Bureau.

It will be gathered from all of this that a complete and flexible system has been set up by the American Association of Woolen and Worsted Manufacturers in the woolen trade for the adjustment of any kind of dispute not clearly involving a question of law.

Problem of Court Cases

The one kind of dispute that we have not been able to meet squarely is the dishonest dispute; that kind of dispute that grows out of a deliberate intent of the buyer (or seller) to evade his contract, to evade his responsibilities.

There is no kind of dispute founded upon an honest difference of opinion that cannot be dealt with through the Association. On the other hand nothing but force or court can handle the man who wants to cheat, or to evade duly contracted obligations by indirect or unfair methods. He must either be brought up to a plane of decent trading by education or run out of business if that is impossible.

* Secretary, American Association of Woolen and Worsted Manufacturers.

Fundamental Research in the Cotton Industry

John Bancroft Calls Attention to Need of Establishing Basic Facts—Suggests Institute along Lines of That of British Cotton Industry Research Association—Believes Work Should Be Undertaken by Pure Scientists, Men Who Do Not Know "What Can't Be Done"—Opinions of Scientists and Men in the Industry

By a Member of the Staff

WHAT is to be done to counteract the effect of the mechanical era in industry? How can the worker's interest in his job be restored and maintained? What assurance is there that the process of universal education will not eventually drive all Anglo-Saxon peoples from monotonous operations handicapped still further by strict wage limitations?

The finding of an answer to these questions has been uppermost in men's minds for years. Attempts to establish incentives have been varied and numerous, ranging all the way from improvement of working and living conditions to granting the workers a voice in the affairs of the company.

Much good has come out of many of these plans but none has proved sufficiently basic to warrant its adoption as a general panacea for industrial ills. With an air of discouragement, employers are often heard to remark: "What's the use of all these employe service plans? All that my people seem to be interested in is their pay envelopes."

But this suggested attitude on the part of workers is not so unnatural or selfish as is sometimes implied. It is doubtful if any incentive has such a universal appeal to men in all walks of life as the opportunity to *earn* more money. Offering of bonuses or gifts has not proved a satisfactory substitute. The average man wants to see his effort translated in terms of increased remuneration.

Unfortunately the manufacturer in attempting to satisfy this normal desire, is usually handicapped by inflexibility in the productive capacity of his machinery. Where this handicap has been lessened, the industries concerned have been able to put into effect cheaper selling prices, proportionately greater consumption of their products, higher wages, and better returns on invested capital.

Research in the Textile Industry

A similar accomplishment is foreshadowed in the textile industry if the plan for an institute of fundamental research, proposed recently by John Bancroft, president of Joseph Bancroft & Sons Co., Wilmington, Del., is carried forward to its logical conclusion. In the early fall, Mr. Bancroft sent to leaders in the industry a booklet containing information regarding the opening last March of the research laboratories of the Shirley Institute, established by The British Cotton Industry Research Association. Accompanying this booklet was a short note from Mr. Bancroft, stating his belief that a research bureau on lines similar to the Shirley Institute, and supported by the cotton industry, should be established in the United States. This suggestion was favorably received in all sections of the industry and appears to be the impetus needed to secure definite thought and action, by which production of textiles will be placed upon a more efficient basis, and the corollary results, outlined above, achieved.

In an interview with a representative of TEXTILE WORLD, Mr. Bancroft stated that he had no cut-and-dried plan to offer, but merely wished to throw out a suggestion which could be developed by the best thought in the industry.

"The principal objection to research work as attempted in the industry to date," said Mr. Bancroft, "has been its limitation to particular problems of individual mills. There has been an appreciation of the importance of applied research but not of that of fundamental research. There has been too much of a disposition on the basis of actual revenue achieved. What is needed is a searching inquiry into the basic features of cotton manufacturing, not with an idea of determining which of the premises now accepted are right or wrong, but with the definite endpoint of determining what are the right premises, irrespective of what has gone before.

"In other words, we must start from scratch. To do this it is necessary to enlist the aid of pure scientists, men who are not familiar with the technical details of the textile industry—*men who do not know what can't be done.* It is my idea that the first step would be to select a committee of such men including a chemist, a chemical engineer, an engineer,

FUNDAMENTAL RESEARCH AS VIEWED IN ENGLAND

The following significant remarks are taken from the speech of Kenneth Lee, chairman of The British Cotton Industry Research Association, at the formal opening of the laboratories of the Shirley Institute:

"We hope that the staff of the Shirley Institute will act first, as an intelligence department, to survey the field and locate the obstacles, and also to decide in which directions a concentration of attack is likely to be successful in overcoming those obstacles. . . .

"We realize that in the long run the conditions of the people can only be improved if the industry is successful, and we believe that organized science can play a material part in our future development. . . .

"Although Crompton's mule is the basis of the machine we use today, in the early days it was developed with the assistance of men who had not been brought up in the cotton industry. . . .

"With modern scientific methods, and a staff of scienticts proficient in all the sciences that can be used in our fundamental work, we ought to make greater revolutions than were made in the 18th century. . . .

"We think that in founding this Institute we are establishing a necessary link between the universities and the industry which has up to the present never existed. . . ."

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Shirley Institute of the British Cotton Research Association

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Experimental Machine Shop in Shirley Institute

a physicist, a botanist, a microscopist, etc.—men of high standing and repute—whose duty it should be to formulate the lines along which fundamental research in the textile industry is to be conducted and to direct the activities of the proposed institute.

"The findings of these scientists and their co-workers in the institute could then be placed in the hands of a board composed of leading men in the industry. Through this channel the results could be passed to individual manufacturers and the fundamental facts thus determined applied to particular problems. One great effect would naturally be an increase in research investigation in the mills themselves, development of trained investigators, and a decided impetus to the broadening of scientific knowledge throughout the industry.

Some Suggested Details

"This is but an outline of what I have in mind and cannot be considered a definite program. Naturally I have tentative ideas about certain details of the program. For instance, I believe that Washington might be considered a logical location for the institute. It is practically equi-distant from the New England and southern industries. In addition that city has the advantage of the staff and work of the Bureau of Standards. Much routine preliminary investigation along the lines of standardization and test methods could be carried on at the Bureau and duplication of effort thus prevented. That organization has one element which is priceless, namely, it has men who are working for the love of science and not for the salaries involved. The utilization of the brain power of these men would react very favorably on the program of the institute and would, I am sure, be welcomed by the Government.

"As far as the financing of the institute is concerned, the problem is an easy one. In the first place the original investment need not be large. There is no need for a particularly expensive building or elaborate equipment at the start; in fact, since we do not know what we will need, the less we burden ourselves with at the beginning, the better. It is time enough to purchase equipment as the work develops and the need arises.

"A prominent scientist estimated for me that $250,000 a year would be ample funds for the conduct of the institute. Suppose the industry was assessed on the basis of one cent a spindle; this would bring in approximately $360,000 or 50 per cent more than this estimate, and certainly such an assessment would not rest heavily upon individual manufacturers.

Should Include All Branches

"Although I have spoken mainly of the cotton manufacturers themselves, I think the work of the institute should have the cooperation of all factors from the growing of the cotton to the distribution of the goods. Since its results should benefit the entire trade, there is no reason why the cotton farmer, broker, spinner, weaver, knitter, dyer, finisher, commission merchant and retailer should not be interested and should not be expected eventually to contribute to its support. However, to get the thing started might properly be considered the task of the cotton manufacturers themselves. In fact there is already established a body which might well serve as the motive power, namely the National Council of American Cotton Manufacturers, made up of representatives of the National Association of Cotton Manufacturers and the American Cotton Manufacturers Association. Through the auspices of this Council the movement could receive the impetus which is needed at the start.

"Nor is it necessary that this movement be restricted to employers. In England a number of the leaders of the great organizations of operatives are members of the Research Association. It is only necessary to impress employes with the fact that more efficient and consequently cheaper production does not mean lower wages but foreshadows on the contrary greater consumption and higher return to both capital and labor."

The above is a brief outline of the plan which Mr. Bancroft has in mind and the developmpent of which may make the year 1923 a historic date in the annals of the cotton manufacturing industry of the United States.

In order to secure a bird's eye view of the probable sentiment of the industry toward this proposed institute of fundamental research, TEXTILE WORLD has obtained opinions from prominent scientists and from men connected with the industry itself. Their thoughts along this line are printed below.

Widespread Interest Necessary

By *Fessenden S. Blanchard**

Editor, TEXTILE WORLD:

I am very glad to have the opportunity of expressing my endorsement of Mr. Bancroft's proposal. I believe that the question of fundamental research is of the greatest importance to the textile industry in this country, and that the time is not far distant when the entire textile industry will wish to co-operate in some such Research Institute as Mr. Bancroft suggests, along the lines of the British Cotton Industry Research Association.

Our big problem is of course how best to bring this about. There seem to be two possible ways of raising the money: Either by a few large subscriptions from mills or individuals willing to do a good deal more than their share for the good of the industry, or by a widespread subscription of small amounts from the whole industry.

The first method might in some ways be easier at the present time, but would be open to some serious objections. Unless a majority of the mills contributed themselves to it they would not feel that it was *their* plan, and we might be faced with a situation in which the Research Institute and the mills would each be going their own respective ways,—without that constant contact and co-operation between scientific and practical men which is so necessary to the success of both.

The second method is, I believe, wiser, though it will take longer, for there must be a widespread belief in the practical financial value of research if the financial support and co-operation of a majority of the mills are to be obtained. I realize that many of the great triumphs of modern invention as applied to every-day problems have had their origin in fundamental research by men who were not so familiar with technical details as to "know what couldn't be done." In spite of this fact, however, I cannot help feeling that the best way to arouse the interest necessary to sustained support through the long period of waiting for fundamental research to show results, is to foster applied research in as many mills as possible.

I am convinced that many problems arising out of existing mill practices can be solved or at least better handled by co-operative effort among a number of mills. In the National Association of Cotton Manufacturers we are hoping that a number of groups of mills will be willing to study jointly a number of their chief problems in co-operation with the Research Department of the association. We hope that in this way results will eventually be obtained which will interest a constantly increasing number of mills in the possibility of going more and more deeply into their problems. Our experience at the Cotton Research Company indicates that the best results are obtained when applied research in the mills and more fundamental research in the laboratory go hand in hand.

We should do all we can to encourage the development of applied research in the mills, for until the mills are really "sold" on the practical possibilities of the research point of view, it will, I believe, be very difficult to obtain the close working cooperation which can make fundamental research a success. At the same time, it seems to me that nothing but good can come from doing our best to awaken a widespread interest in Mr. Bancroft's plan as the ultimate goal.

FESSENDEN S. BLANCHARD.

* Assistant Treasurer, Pacific Mills; Chairman of Research Committee, National Association of Cotton Manufacturers; Member of Research Committee, World Cotton Conference.

Great Importance to the Industry

By *Russell B. Lowe**

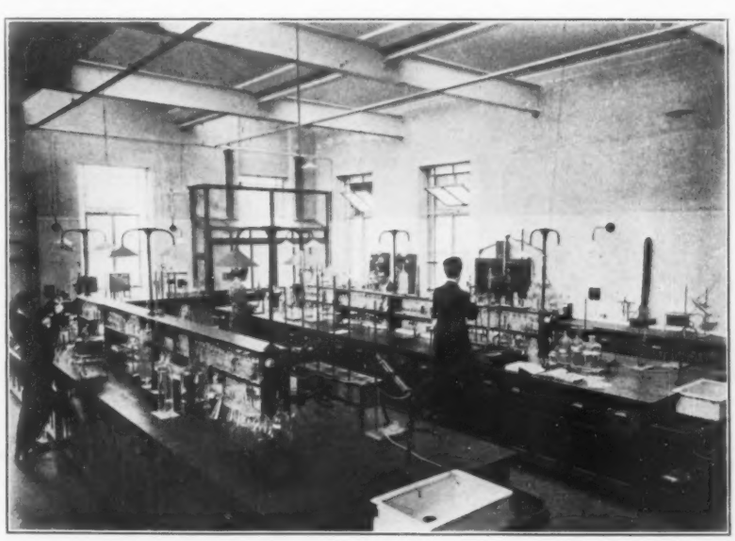
Editor TEXTILE WORLD:

I have read Mr. Bancroft's plan for research, and I feel that he has touched a point of great importance to the textile industry.

The importance is plainly seen in England, where the supply of raw material and the more efficient manufacturing of goods are absolutely necessary if they are to maintain their world position in the industry. Research in England will serve like an audit to guarantee that they are not letting any of the fine points go by, and that they are keeping abreast of the newest thought in the industry.

We have not come to this point in the United States yet, because we raise cotton here, and feel secure in our position, but the time is approach-

* President, Parkhill Mfg. Co., Fitchburg, Mass.; Past President, National Association of Cotton Manufacturers.



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One of the Laboratories in the Shirley Institute

ing very rapidly when we will feel the same pressure that England does. We know that the quality of our fibre is deteriorating considerably over periods of five and ten years. We know that our supply of raw material is continually diminishing, and that we must improve these conditions.

In our process of manufacture there are always new thought and new ideas coming in, which should be investigated. If they are of value, let them be given to the industry. In the dyeing, finishing, etc., of our goods, rapid changes come up very quickly, and a research laboratory would soon approve them or disapprove them, and save the industry a considerable sum.

I believe that Mr. Bancroft is right, and that the suggestion he makes should be carried out. It should have the approval of the southern and northern textile trade and their wholehearted support before being undertaken.

R. B. Lowe.

Need for Research Will Be Felt

By *H. R. Fitzgerald**

Editor, Textile World:

I HAVE read with much interest Mr. Bancroft's views in regard to a plan for fundamental research in the cotton industry.

I hardly feel competent to express any opinion on this subject for the reason that so much depends upon the use to which the information may be put, as well as the system employed in getting at it. It is my impression that the National Association of Cotton Manufacturers has had a Research Department for the past two or three years, and the last I heard of it was a general complaint that it was not patronized by but a very small proportion of their members.

Whether anything could be done at the present stage of the industry to bring about concert of action in this important field, I am hardly in position to say, but undoubtedly the time will come when the necessity for such a step will be greatly felt. It would seem to me that the practical method of procedure would be to handle the question through the Board of Governors of the National Association and of the American Cotton Manufacturers Association, respectively, and in that way obtain an expression of judgment, which would no doubt fairly represent the view of the industry as a whole.

H. R. Fitzgerald.

* President and treasurer, Riverside & Dan River Cotton Mills, Danville, Va.

Intermediate Steps Necessary First

By *Sidney B. Paine**

Editor Textile World:

Mr. Bancroft's views on the necessity for fundamental research are most interesting.

For many years the value of scientific research has been recognized in this country and research laboratories have been established. The majority of these laboratories have been supported by corporations or firms for their own private benefit. Some of our larger scientific schools have provided facilities for research in special lines for the instruction of their students, and also to assist industry upon specific request. The United States Government has also engaged in the solution of problems of a general interest. All of these activities have been carried on independently and, until recently, there has been no attempt in this country to co-ordinate their efforts or investigations.

The organization of the British Cotton Industry Research Association was brought about by the recognition of the cotton industry in England that the best results would follow co-operative rather than independent action. Some of the delegates to the Second World Cotton Conference, in Manchester in 1921, were privileged to inspect the laboratories of this association which, under the able leadership of Dr. Crosley, were being erected in one of the suburbs of Manchester, and which were formally opened on March 28, 1922. The American members of the Research Committee of the Conference were profoundly impressed by the importance of the united action taken by the British manufacturers.

Intermediate Steps Necessary

The suggestions made by Mr. Bancroft are very timely, and everyone connected, directly or indirectly, with the cotton industry cannot fail to appreciate the wisdom and importance of the plans outlined. There may be some question, however, whether they do not represent the ultimate action to be taken and whether they should not be preceded by intermediate steps. In order to enlist the sympathy and support of the cotton industry in concerted effort, there must be some evidence that there will be a financial return on the investment. This may appear to be a sordid view, but is it not true? Does it not provide the necessary stimulus to the investors to contribute not only their money, but also their combined experience?

In England the cotton industry is so concentrated in the neighborhood of Manchester that within thirty miles of that city there are more cotton spindles than are found in the United States. In this country the industry is scattered from Maine to Texas and from the Atlantic to the Pacific. If the laboratory were located in Washington, it would be visited by but few of our manufacturers and their interest would soon wane unless some immediate results were obtained. If the scientists employed in that laboratory had no previous knowledge of the cotton industry, would not their investigations cover a field much wider than that occupied by the cotton industry? The results of such investigations might be very valuable to the country at large, but would they not be relatively of less importance to the parties who support the Institute than if all the time and thought of the scientists were spent in advancing the interests of their employers?

A Definite Objective

In order to carry an investigation to a successful conclusion, within a reasonable time, would it not be advisable, in fact is it not necessary, to have a more or less definite end in view? Without such an objective, is not the investigator liable to follow any diverging path which he may meet? For instance, if he is investigating the cotton spinning process, he will find that the use of better cotton will improve the result. If he follows this side track he may finally land in the cotton field, where he may discover that a different character of soil, greater use of fertilizers, etc., may give an improved staple. Cotton culture is a very important subject, but it requires a knowledge of agriculture which may not be possessed by the investigator who has wandered (perhaps it would be fairer to say that his steps have led him) into that field. In any event, he will have to return to his spinning frame if he is to continue his original studies.

Kenneth Lee, chairman of the British Research Association, recognized this feature in his remarks made at the opening of the Institute. It seems that criticism had been made, that the universities had not been called upon to the extent that they should have been as thereby the Institute could have saved much money and could have gained the advantage of the co-operation of the distinguished scientists who held the professional chairs in the universities. Mr. Lee remarked:

> "It seems that our critics have hardly realized the amount of time which the professor would have to spend in learning the conditions under which this remedy would have to be applied, without which, though his researches might be very fruitful in the accumulation of scientific fact, they would in all probability be of little or no value to the practical man."

Utilize Existing Facilities

Would it not be well to commence our joint activities by utilizing the facilities already existing and, if possible, by so directing these activities as to avoid duplication of effort? Our textile machinery may not be ideal, either in design or operation, and undoubtedly the scientists might evolve many radical and important improvements, and possibly invent new machinery, but the machinery that we have must be used meanwhile to earn the money to support the scientists while they accomplish these changes, and the textile industry would derive much benefit from the investigations carried on in the existing laboratories. Would it not be well, therefore, to carry out the plan formulated at the Cotton Conference, and secure the combined interest and support of our American manufacturers by arranging in as far as possible, for the co-ordination of effort in our private laboratories under the guidance of a committee representing the several interests, which committee might also include the scientists who later might be transferred to the central laboratory at Washington if the results seem to warrant such action? Ought we not to attempt to crystallize the present interest in research work and to extend its influence and gain new adherents before taking up the more ambitious plan?

Sidney B. Paine.

Must Break Away from the Old

By *L. W. Clark**

I believe Mr. Bancroft's suggestion is a good one. For a good many years I have thought that our textile schools should do far more than they ever have in the way of strictly research work. With this opinion I found a number of other manufacturers agreed. But notwithstanding the very fine work done by our present-day textile schools they have only scratched the ground for research development and with no very wonderful results.

I think we can now see that this type of work can be done much better if dissociated from the schools. Textile instruction is, basically, simply imparting knowledge of established principles and practices rather than the development of new ones, and that undoubtedly is the real reason why so many of our textile graduates come to enter manufacturing plants all over the country with hardly a new manufacturing idea.

That the industry can be materially benefited there is no doubt, if the proper research organization can be formed and men of scientific and mature minds are secured to head up the

* Manager, Mill Power Dept., General Electric Co., Boston; Member Research Committee, World Cotton Conference.

* General manager of the Carolina Cotton & Woolen Mills Co., Spray, N. C.

work. This seems to be Mr. Bancroft's idea—to secure "pure scientists" and for them to "start from scratch." That would be a good beginning, and I have no doubt but that the manufacturers could suggest very fruitful lines of research even though some might not at first be willing to try out in a practical way the result of such research investigations. I mention this feature because within the past year I have been much interested in some rather important experiments made by a firm of mill engineers along strictly research lines. Having had access to the results of their experiments, I was inclined to think they were working along right principles, even though some of their conclusions seemed revolutionary as compared with present operating standards. I was not, however, ready to attempt application of the new principles to quantity production or actual plant practice. My associates were also inclined "to let someone else try it out first."

We have all, as manufacturers, been too ready to take such a stand as above mentioned, but the time has come when we must break away from the old and reach out after the new. With the co-operation of our textile manufacturers and other allied groups, from cotton growers to mill engineers, it would seem that a research institute could render valuable service not only to the industry but indirectly to the trade in general. Personally I shall watch with much interest the development of such an institute. L. W. CLARK.

Develop Research Habit First

By *H. C. Meserve**

Editor TEXTILE WORLD:

The monograph of Mr. Bancroft on the research laboratories of the Shirley Institute, has again revived the interest of textile manufacturers in research possibilities.

The British plan is a very far-reaching one and contains tremendous possibilities. It is far too early to prophesy what the actual results will be; indeed, a part of the plan promises that no results whatever may be obtained for five years. Conditions in the cotton industry in England make the establishment of these laboratories, on the scale proposed, possible. In the first place, the industry is localized; in the second place, it is highly specialized; and, in the third place, the laboratories being located, for the most part, in the heart of the industrial section, maintain a direct contact with the manufacturers.

Conditions in the United States, as we all know, are radically different, both as to location and methods of production. There is also a lack of organization, with a resultant lack of coordination, on the part of manufacturers. Consideration must also be given to the necessity of raising very large sums of money merely as an initial step, and if this were successfully done, further considerable sums must be guaranteed to carry on the research work over a sufficiently long period of years to assure any result at all comparable with the expenditure involved.

While it is true, as suggested, that Crompton's mule and Whitney's gin were invented by individuals having no knowledge of textile machinery or cotton, it is also true that most of the great inventions in textile and other machinery have come from individuals experienced in their respective lines. The idea that a scientist entirely unfamiliar with "the technical details of the textile industry" could, as it were by accident, achieve more than one acquainted with a thorough knowledge of his subject, does not make a particularly strong appeal.

A beginning, which may readily develop into a result as great as the demand requires, has already been made by the National Association of Cotton Manufacturers. For some ten months a thoroughly equipped research man, in a constantly growing laboratory, has been at work on the actual problems in the textile industry as presented by manufacturers. This is not, of course, the pure research contemplated by the larger plan suggested by Mr. Bancroft. It has, however, certain merits which commend themselves to manufacturers—it does solve immediate problems, and it is gathering data which is bound to be useful when the time for pure research has, in the opinion of the National Association's Research Committee, arrived. The amount appropriated for this work is small, but the results already obtained have been of great practical assistance and have pointed toward a solution of more difficult problems.

So satisfactory has this experiment been to the Board of Governors of the National Association of Cotton Manufacturers that further developments are planned for this year.

The great advantage of this method to the average American manufacturer, who is constantly seeking results, is the fact that these results are usually before him within a reasonable time, and he is able to make such modifications or changes in his plans as he may deem necessary.

The suggestion of Mr. Bancroft is well worth keeping in mind, and deserves all the publicity possible in the hope that, at no very distant day, it may become a reality. In the meantime, it is very much to be desired that other associations and groups should consider the research idea as applied in The National Association of Cotton Manufacturers, with a view to developing the habit of research and confidence in its possibilities eventually to give much more than the immediate value received to the industry. H. C. MESERVE.

* Secretary, National Association of Cotton Manufacturers.

Industry Must Follow New Trails

By *Dr. Charles H. Herty**

Editor TEXTILE WORLD:

Mr. Bancroft makes a timely plea for an institute in which shall be conducted research of a fundamental character on the problems of the textile industry.

Biology teaches us soundly that where growth stops decay sets in. Systemization and sound financing are absolutely essential bases for any line of industry, but these alone will not suffice for continued healthy existence. Through fundamental research alone can there be blazed out the new trails which an industry must follow if it is to keep in the front ranks.

The great investments in the American textile industry are in themselves a justification for setting aside a goodly portion for preparation for the future. The problems to be solved are many sided, and the best possible talent should be secured and furnished with ample facilities for co-operative effort. Time has passed when we can look to any one man to make the advance. It is a co-operative age, and from cooperative effort in fundamental research we have a right to expect the real advances of the future.

The proceedings of recent meetings of textile men show that these thoughts are already clear in the minds of textile leaders, but the thoughts are not yet sufficiently dynamic. Mr. Bancroft's interview brings the conviction that the dynamic period in this matter is near at hand. Growth must not stop, lest decay set in. CHAS. H. HERTY.

* President, Synthetic Organic Chemical Manufacturers' Association of the United States; Past President, American Chemical Society.

Plan Should Receive Support

By *H. E. Howe**

Editor, TEXTILE WORLD:

I am delighted to have someone in the industry take so active an interest in the application of research to problems in the textile field. By referring to records of the World Cotton Conference in New Orleans, and to the meetings since of the National Cotton Manufacturers Association, as well as articles elsewhere, you will see that for several years I have been urging this sort of thing before groups of textile manufacturers. That I am still interested in the possibilities is shown by an editorial in *The Journal of Industrial and Engineering Chemistry* in our July number, page 586, under the caption "Textile Research Institute."

There are probably some slight differences in the preliminary suggestions of Mr. Bancroft and those of us who have been urging this forward step upon textile manufacturers, but some time ago we outsiders realized that while we were respectfully heard by groups of manufacturers, nothing happened, and expressed the belief that until some manufacturer was willing to take the lead, there was little hope for a cotton or textile research institute in America. Mr. Bancroft's interest is therefore exceedingly welcome, and I hope that he will receive the support he deserves and that some plan may be speedily developed upon which textile interests can be united and immediate steps taken for the benefit of the industry and the country.

H. E. HOWE.

* Editor, Journal of Industrial & Engineering Chemistry, Washington, D. C.

Should Use Non-Textile Men

By *F. R. McGowan**

Editor TEXTILE WORLD:

There should be no reason why a research plan would not work out with the use of non-textile men. By selecting men outside of the textile trade, their usual procedure will make it possible for a more exact classification of textile literature and results of investigations. They will of necessity refer to text books interpreting the subject matter in their own way, giving us a different aspect on some of them and increasing their usefulness.

This idea of selecting men is borne out in our Textile Section, where we found it difficult to get a man of ten or more years' experience in a mill to write a report of his findings so that the user, machine builder and manufacturer could understand and appreciate it. On the other hand, we have at different times called in professors and undergraduates on problems with much success.

The next step is to obtain suggestions from the textile trade and physicists from any part of the country by circulation through your journal and others, also by submitting results to the wool and cotton research committees for necessary action.

The time of the lone investigator has passed. Reference to the automobile industry agreements on patents and the extensive research facilities of other industries should indicate this. The number of necessary

* Chief of Textile Section, Bureau of Standards, Washington, D. C.

improvements and the nature of the problem demand collective economy of time of investigators, equipment and salaries.

Executive Should Be Interested

The mill executive should be an active person in all this work. He should be interested not only in providing the money but in examining the nature of the work and putting it on the same basis as he does the production of yarns, fabrics, etc. Accordingly education along this line demands initial attention. The efforts of our Bureau to form these executive committees would tend to make possible such control. It might even be possible for our cotton committee to consolidate the work of supervising the cotton institute and all other research on cotton in this country. I doubt, however, if there will be any competition in this line for some time.

Proposed Location Ideal

I believe that the proposed location (Washington) is ideal for the following reasons:

1. Equidistant from centers.
2. Present textile equipment at Bureau.
3. Facilities other than textiles at Bureau.
4. Department of Agriculture's position to aid.
5. Headquarters for textile representatives while in Washington.
6. Education of legislators.

F. R. McGOWAN.

Will Pay in Dollars and Cents

By *Dr. Charles L. Parsons**

Editor TEXTILE WORLD:

I am pleased to hear that the proposal of Mr. John Bancroft that the united cotton industry form an association to apply fundamental research to the problem of cotton manufacture and use is to be taken up and given wide publicity by the TEXTILE WORLD. There can be but one answer from men familiar with modern industrial progress. It should be done. Mr. Bancroft is peculiarly able to appreciate the advantages of research, for, having applied it to his own peculiar problems and kept his works fully productive when the textile industry was at its lowest ebb, he speaks from experience.

It is difficult for one who has not been in touch with results obtained by others along this line to realize how much that is new is developed by basic fundamental scientific research into an industry. Results are not always immediate but careful investigation by trained men into the physical and chemical characteristics of such a material as cotton will in the end pay manifold in dollars and cents. No single works or corporation can perhaps afford to invest the money necessary, but if the manufacturers of cotton will join together for the purpose, the cost will be small to each and all will gain in the end. America cannot afford to let England or any other country keep even a single jump ahead of her in the technology of cotton. The idea proposed by Mr. Bancroft is new only in its application to the industry in which he is especially interested.

America being a new country, with almost limitless resources, was somewhat behind Europe in realizing that research was a real commercial asset; that only through careful scientific study could our raw materials be most efficiently utilized; our waste eliminated and new and useful products developed. In the first century of our history only a few shining lights in chemistry, such as Rumford, Hare, Stillman and Gibbs appeared. In 1876, when the American Chemical Society was founded, it is doubtful if there were 200 chemists in America, although real chemical activity had begun to appear. From then on, however, progress has been rapid and has been continually accelerated until today there are at least 25,000 men in America who call themselves chemists and our annual expenditure in scientific and industrial chemical research is increased by many tens of millions of dollars.

Our early inspiration came almost wholly from Europe. For years our most prominent young chemists felt that their education was not complete without a few years in European universities, and our early laboratories were patterned from the ideas they brought back. A realization of the importance of science grew rapidly and many important donations were made to our great universities; many state and Federal institutions were established and many independent foundations were created. As a result Americans had almost ceased to go to Europe to complete their education when the Great War came on and made us realize both the inter-dependence of world science and also the national necessity for independence should occasion ever again arise.

Research Started in Universities

In America as in all countries the application of chemistry grew from its universities and its pure science laboratories outwards. Within the last forty years almost all of our great research institutions, such as the sixty or more Agricultural Experiment Stations, the Bureau of Standards, the Bureau of Chemistry, the Bureau of Mines, the Forest Service Laboratories, the various branches of the Rockefeller Institute, the Carnegie Institute, and many others have been established. Within twenty years most of our universities have built new modern and extensive laboratories. Within a like period most of our large industrial laboratories were started. From their accomplishments, and especially from the money value of the research of individuals which led to their establishment, has come to most progressive American corporations the realization that chemical research is a commercial asset that they cannot afford to ignore or forego. Some of these corporations starting twenty years ago with a few thousand dollars annual expenditure for chemical research are today profitably expending millions.

Cooperative Research

There are, however, common factors for research in every industry and of recent years some of our more intelligent corporations working in similar fields have developed the newer procedure of forming research and trade associations for their common welfare. All of these associations are giving a prominent place, usually the most prominent, to chemical research. There are now over 35 such associations in America with annual budgets in some instances of over one million dollars. Experience has proved that chemical research on the association plan can be carried forward without detriment to competitive interests. The individual in the association who is best prepared, through his own laboratories, to utilize the results of research continues in the same commanding position as before.

These 35, or more, associations, constantly increasing in number, are carrying on these chemical researches through the establishment of fellowships in our colleges or in such institutions as the Mellon Institute for Industrial Research, through specially equipped consultants, and in a large number of cases through laboratories of their own, especially built, thoroughly equipped and efficiently manned. A paper could be written on the work of each of these associations, but only two or three can be mentioned here.

Often a number of companies have come together in one large corporation and thus pooled their chemical activities in large and well equipped research departments. Noteworthy examples are the General Motors Co., the National Carbide and Carbon Corporation and the American Writing Paper Co. How much better for a whole industry like the cotton industry to do the same thing!

Example of Best Procedure

All of the large meat packers of America have for years maintained chemical research departments of unusual efficiency. Their accomplishments in the utilization of every part of the animal slaughtered are known to the world and have enabled the companies to make profits otherwise impossible. Their success has been so marked that, while continuing their individual research, they have just announced a plan for the organization of the "American Meat Packers Association" which is an excellent example of the best procedure of a combined research and trade association.

Mr. Bancroft is right that all those who have to do with the production and fashioning of cotton are interested in such an association. While it will have to be started by the manufacturer, the producer is equally concerned.

Our southern states produce normally some 12,000,000 bales of cotton a year, which carries some six million tons of seed. The fibre has always been valuable, but the seeds were formerly an expensive nuisance. Today, almost wholly through the research of our chemists, the seeds add some fifty dollars to the value of every bale of cotton produced or about one-half a billion dollars a year to America's wealth. The short fibre attached to these seeds is removed and used in nitrocellulose, pyroxeline, paper, upholstery, etc. The oil, formerly going into soap, is now chiefly used as human food. The meal from cotton seed is a valuable cattle food, but is unfortunately still used to a considerable extent as a fertilizer. The oil was first rendered really edible by the research work of David Wesson, who found that its disagreeable taste and odor after refining could be removed by superheated steam. The research work of several of our large soap and oil companies made applicable to plant conditions the discovery of Sabatier and the hydrogenation of cotton oil and other oils has added millions of dollars annually to the value of our soaps and our lard substitutes. In fact, some of these formerly despised substitutes for lard, saleable only when mixed and sold as "compound lard," now under their own appropriate names and unmixed find greater favor and higher price in our markets than lard itself.

Every additional application which can be found for fibre or for the products of the seed add just so much to the welfare of both producer and manufacturer. Such basic problems as the control of the boll weevil, which seems about to be accomplished by chemical poisons, means prosperity to both as well as the continuation of America's pre-eminence in cotton and its products. Many other equally common problems are sure to arise if the whole industry is viewed from the scientific standpoint.

It is impossible to convey any really comprehensive idea of the appreciation of chemistry by our experienced industrialists and its application to the needs of our country in small compass. I wish I had the time and the ability to outline to you the resources, the accomplishments and the bright outlook of our great educational and philanthropic institutions in pure chemistry. In closing I wish to emphasize again the dependence of all America's wealth upon discoveries in pure science and to express the hope that the great cotton industry will find all of its leaders in accord with the clear vision of Mr. Bancroft.

CHARLES L. PARSONS.

* Secretary, American Chemical Society, Washington, D. C.

Improved Method for Sectioning Textiles

An Ingenious and Highly Accurate Method by Which Extremely Thin Sections of Textile Fabrics May Be Prepared for Photomicrographic or Microscopic Examination—Particularly Important for Studying Effect of Finishing Processes

By *Nathaniel O. Howard* and *Walter H. Snell.*

STIMULATED no doubt by the activities of the great war, considerable interest has been shown during recent years in the microscopic study of textile fibres and fabrics. By means of this study it is now possible to identify fibres and fabrics, detect their adulteration, determine the presence of unripe and dead fibres, kemps, mildew and bacteria, and observe the exact angle or irregularities in twist of yarn, the degree of mercerization, the extent and the character of penetration of dyestuffs and sizings, the effect of calendering and other finishing processes to which textiles and fabrics may be submitted. In many cases permanent records in the form of carefully prepared sections or photomicrographs may be obtained and used for demonstration and comparison or filed for future reference. Moreover, by such a study it is often possible to keep a constant check upon many of the processes in the laboratory, the spinning room, the weave shed, the dye house, the finishing room and other parts of the mill where textiles are in the making.

For purposes of such a minute examination, it frequently becomes necessary to prepare extremely thin sections of the various fabrics, which can be mounted upon microscopic slides of glass and studied under the higher powers of the compound microscope. The preparation of these sections requires considerable skill and patience. No general technique has yet been devised that may be applied to all types of examination. Many require a special treatment of the material. Hence a skilled textile technologist must be a microscopist, a physicist, a chemist, and at the same time an artisan. He must be able to apply theory to practice, to discover faults and propose remedies.

Several suggestions for a special technique to be followed in preparing satisfactory sections of textiles have been made. Unfortunately, in the majority of cases, they have met with little success. This is particularly true of many of the methods proposed for the sectioning of cotton fabric, a material which offers peculiar obstacles. In order to section any fabric, however, whether it be of cotton, linen, wool, silk or other textile, it is absolutely necessary that the individual fibres be securely held in their proper relations with reference to one another during the sectioning and mounting processes. Hence they must be properly imbedded in a tough, firm but not brittle matrix. For this purpose celloidin, cellulose acetate, paraffin, gelatin, gum arabic, glue, agar, and several other substances of a similar nature have been employed. The standard methods of the histologist must often be modified, however, since they make use of certain solvents which, when employed for the study of textiles, might seriously interfere with or actually defeat the end in view. In connection with certain experiments to determine the distribution and extent of penetration of the various classes of dyes in cotton fabrics the senior writer has developed a modification of the paraffin method which he believes may have a much wider application in the microscopy of textiles.

* Both of Department of Botany, Brown University.

The unique process for preparing extremely minute cross-sections of textile fabrics for microscopic examination, which is here described publicly by the originators for the first time, forms a highly important contribution to textile research work. Especially interesting from the scientific standpoint is the comparative rapidity of the method and the extreme thinness of sections made available.

It has been found of especial importance in the accurate study of the character of dye penetration, sizing distribution, mercerization and allied processes.

Although it is quite true that the details of the method are of more vital interest to the technologist than to the textile manufacturer, they can be studied with profit by the latter for two reasons: First, because they demonstrate conclusively that for much textile research work the services are essential of a textile technologist who is also a microscopist, a physicist, a chemist and a skilled artisan. Second, because the broadcasting of the intimate details of the method, instead of patenting and retaining them for personal advantage, is a characteristic of the scientist that might be well copied in many cases by manufacturers to their mutual advantage.

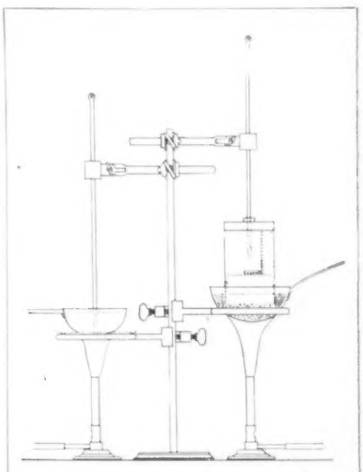
Preparation of Paraffin Matrix

The standard paraffin method well known to the animal and plant histologist or pathologist is a long and tedious process, requiring from ten to fourteen days for its completion. In order thoroughly to infiltrate the material to be sectioned with the embedding substance it is necessary that the contained water be entirely removed. This is accomplished by careful dehydration, using for this purpose a series of alcohols ranging from 5 per cent. to 100 per cent. In the case of colored fabric it can readily be seen that the use of alcohol, which is an excellent solvent for the majority of our organic dyes, may modify the distribution and perhaps completely remove the coloring agent from the textile. To obviate this difficulty and at the same time secure a satisfactory dehydration Lee and Hoxie employed moderate heat in place of alcohol. They made use of the drying oven commonly found in testing laboratories, and maintained, for a comparatively short time, a temperature a little above the boiling point of water, *i. e.*, 212 deg. F. (100 deg. C.).

With this and other modifications of the standard paraffin method made by the senior writer and herein described it is now possible to prepare, permanently mount and have under the microscope for examination, sections of fabric within an hour from the time samples are received in the laboratory. Hence the method becomes of real practical value as a means of keeping check upon the several processes to which the fibre or fabric is submitted. It also finds ready application in the study of many allied processes such as occur in the manufacture of paper, cordage, twine, leather, and many other industrial products. It is not applicable in the study of soft, succulent material such as fresh animal or vegetable tissue. Those investigations properly come within the sphere of the histologist or pathologist.

Description of Apparatus

According to this method, a small piece of the material to be studied, for example, cotton or woolen cloth, is first cut into a few squares perhaps three-sixteenths of an inch on a side, the edges being parallel to the warp and filling respectively. These squares are then placed in an oven and dried at a temperature of 230 deg. to 240 deg. F. (110-115 deg. C.) for approximately 15 minutes. An oven which provides for free circulation of air is to be preferred. The writer constructed such an oven out of a metal baking powder can by punching two one-quarter inch holes in opposite sides of the can, one about an inch above the bottom, the other about an inch below the top. A hole three-quarter inch in diameter was punched in the cover and into this was fitted a perforated cork holding a chemical thermometer. A false floor made of a folded piece of iron



Title—Diagram of Drying and Embedding Apparatus for Preparing Textile Samples for Sectioning

gauze was fitted into the can at a point about one and one-half inches from the bottom. The can was then placed in an iron pan and partly submerged in sand, *i. e.*, until the bottom was buried to a depth of three-quarters of an inch. When this improvised oven with its sand bath had been placed upon the ring of a ringstand and over a Bunsen burner the cheap yet satisfactory drying apparatus was complete. For convenience in handling the cloth squares it was found advisable to use a ladle of one-eighth inch mesh wire gauze, one inch wide and five inches in length, bent into a letter L with the horizontal limb perhaps seven-eighths inch long and supporting a seven-eighths inch square of glass. Upon this glass the squares were arranged and the ladle placed in the can. At the expiration of a drying period lasting for perhaps ten to fifteen minutes, the ladle with its cloth samples was removed. The samples were then transferred by means of steel forceps to melted paraffin at 230 deg. F. (110 deg. C.) contained in a porcelain casserole. A mixture made by melting together equal parts of 52 deg. C. and 58 deg. C. paraffin gave the best results. The temperature (230 deg. F., 110 deg. C.) was maintained by carefully regulating the Bunsen flame, frequent readings be-

ing taken by means of a second chemical thermometer with bulb submerged in the heated fluid. Two carefully adjusted thermostats, in place of the thermometers, are to be preferred in that they will maintain constant temperatures without attention on the part of the operator.

Important Details of Process

To facilitate matters the writer has found it best to prepare small molds of ordinary foolscap paper folded into boxes ⅜" x ¾" x ¾". These boxes are then submerged in the melted paraffin contained in the casserole and allowed to remain there while the sections are being dried in the oven. Moisture and air within the paper are driven out by the heat of the bath thus preventing the formation later on of bubbles in the embedded fabric. At the end of the ten to fifteen minutes' drying period the cloth samples are removed from the oven by means of forceps and placed one at a time in the paraffin contained within the boxes. One section only is placed in a box. Here they are allowed to remain for perhaps fifteen minutes, a length of time sufficient for a satisfactory penetration of the cloth.

While the material is undergoing the embedding or penetration treatment, one or more depressions perhaps 1" x 1" x ⅞" deep should be formed by means of a hot iron in the upper surface of a cake of ice. The paper boxes containing melted paraffin and samples are now transferred one at a time, from the paraffin bath to the ice water contained in these depressions. Heated forceps are best for this purpose. To prevent crystallization of the paraffin which would later interfere with a satisfactory sectioning of the fabric it is important that it be cooled rapidly. Hence the use of ice water. While the lower portion of the paraffin is cooling the sample cloth square may be held, by means of heated forceps, in a vertical position with the lower edge parallel with the bottom of the paper mold. After a minute or two the forceps may be removed. When the shiny surface of the melted paraffin contained in the mold assumes a dull appearance, the mold may be dipped in a larger quantity of ice water and left further to cool. As soon as the paraffin has become sufficiently hard the enclosing paper may be cut away by means of a scalpel or sharp knife. The block is then trimmed to rectangular form in such a manner that the plane of the cloth is parallel to the sides and the lower edge parallel to the bottom of the block.

Freezing Microtome Essential

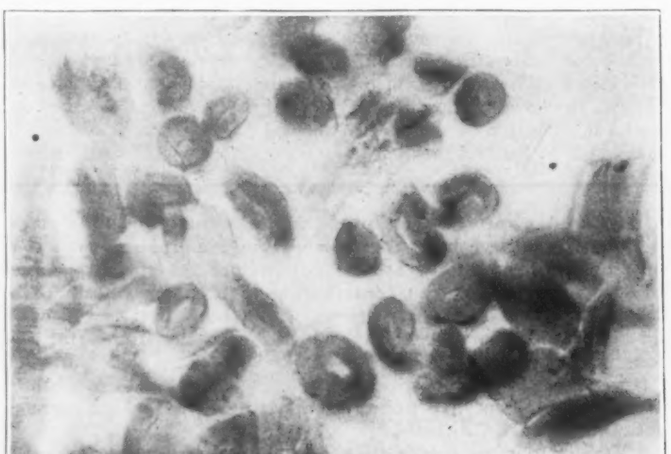
In this condition the blocks may be preserved indefinitely or may be transferred immediately to the freezing head of a freezing microtome of either the carbon dioxid or ether type. The use of a freezing microtome in combination with the paraffin process is the important development in securing thin sections of textiles.

A few drops of a 10% solution of gum arabic in water, containing .5% phenol as a preservative, is first added to the freezing head. The paraffin block is then placed in this liquid and freezing begun. More of the gum arabic solution is added from time to time to the sides of the block. When frozen it forms a firm adhesive shell about the lower portion of the block and securely holds it in position. This operation may require but a few minutes. By regulating the amount and duration of the ether or carbon dioxid spray it is possible to control to a considerable degree the hardness of the paraffin. Frequent trials with the microtome knife will enable the operator to judge the proper degree of hardness to be used with a certain thickness of section. Too low a temperature results in a brittle condition of the paraffin while, as everyone who has had experience with the cutting of sections knows, too high a temperature makes the paraffin so soft that it fails to hold the embedded material in position. The knife is now set (with a slight inclination toward the cutting edge) at a comparatively small angle to the line of cutting. This angle largely depends upon the type of microtome employed as well as the character of the material to be sectioned. Sectioning may be continued as long as necessary, but it will be found advantageous to clean the knife from time to time with a small wad of cotton moistened with 95% alcohol.

It should be borne in mind that it is absolutely impossible to cut satisfactory sections unless the knife be exceedingly sharp and free from nicks. The senior writer has found that a preliminary honing upon a Belgian hone, followed by careful stropping upon a mounted leather strop previously rubbed with crocus gives a very satisfactory edge to the knife. Sections may be removed by means of a camels hair brush and immediately floated upon water at 70° F. (21° C.) contained in a watch glass. It is not necessary that they be kept perfectly flat, for even closely rolled sections if thin will eventually unroll on the comparatively warm water of the watch glass.

Permanent Mounting of Sections

To mount the sections permanently it has been found best to transfer them one at a time from the watch glass to a microscope slide which has been previously cleaned, then smeared with Meyer's Albumin fixative, or ammonium bichromate and glue mixture, and finally wiped off until only an exceedingly thin film of the adhesive remains. The water adhering to the section is then allowed to drain off and the albumin coagulated by holding the slide several inches above the flame of a Bunsen burner for a few seconds or, in case the ammonium bichromate-glue mixture has been used, by exposing the slide to strong light for several minutes. The paraffin may be removed by placing the slide in a Stender jar containing xylol. A few drops of Canada balsam are then added to the section and a thin cover glass applied. Provided the balsam is sufficiently thin it will take but a few minutes to thoroughly cement the cover glass to the slide. No weight other than that of the cover glass itself should be applied. The finished mount is then ready for examination under any of the objectives of the compound microscope. Sections as thin as 2 microns (1/12,500 in.) have been cut by the senior writer from ordinary cotton dress goods. The accompanying illustration taken from a section of dyed cotton dress goods, prepared in the manner described, shows particularly the cotton fibres of the warp in cross section.



Part of Section of Dyed Cotton Dress Goods Showing Cotton Fibres of Warp in Cross Section. Thickness of Section 1/5,000 Inch

Advantages of the New Method

Some of the advantages of the method herein described, follow:

1. It can be applied to a variety of fibres and fabrics.
2. It is comparatively rapid, thus making it applicable to mill conditions in keeping a constant check upon the various processes to which the textiles are submitted.
3. By the combination of the paraffin and freezing methods it is possible to control to a very fine degree the hardness of the paraffin. This becomes of particular importance in the cutting of thin sections.
4. Extremely thin sections may be cut by this method. Sections as thin as 2 microns have been cut from ordinary cotton dress goods by the senior writer. The thickness of the section becomes of great importance in an examination with the higher powers of the compound microscope and in photomicrography, since sharpness of definition and details of internal structure are often made clearer in extremely thin sections. Moreover, in thin sections the individual fibres are less liable to be disturbed from their proper relative positions during mounting than thick ones.
5. An accurate idea of the character of dye penetration and distribution of sizing, mercerization processes, etc., may often be gained from a study of these extremely thin sections.

Bigger and Better Business

Secondary Period of Inflation Will Not Be Objectionable

By *W. Irving Bullard**

A survey of the factors which will affect business in 1923 reveals a preponderance of constructive and favorable influences. I am firmly of the opinion that "bigger and better" business is in store for this year. By "better" I mean more profitable and more normal, and by "bigger" I refer to volume.

We are approaching a mild secondary period of inflation, which from my viewpoint is not objectionable and prospects seem to indicate still higher price levels in textiles, metals and agricultural products. With this rise in commodity prices, profits will increase and then will soon be followed by the inevitable deflation that the laws of supply and demand will bring about.

* Vice-President, Merchants National Bank, Boston; Treasurer, National Association of Cotton Manufacturers.

Cotton Research Company's Accomplishments

This Private, Pioneer Enterprise Is Developing Methods That Must Eventually Be Undertaken by a Larger Group of Mills, or by Whole Industry if This Country Is to Maintain Its World Position—Several New Machines in Use in Research Laboratories

By *E. D. Walen**

SEVERAL years ago it came to be realized by the various interests associated in the management of Lockwood, Greene & Co., and the Pacific Mills that scientific research had fully as important a place in cotton manufacturing as it was already known to have in many other branches of industry. This realization resulted in the incorporation on July 15, 1919, of the Cotton Research Company; a step which is in keeping with the Lockwood, Greene & Co. motto, "Building with Foresight."

Fig. 1

The purpose of the new company was to apply organized endeavor to the improvement of manufacturing processes, to investigate proposed improvements, and to apply scientific analysis and basic concepts to manufacturing efficiency in the mills operated by Lockwood, Greene & Co. and the Pacific Mills. The company was intended entirely for the service of these particular mills and their associates, and it is not, therefore, a commercial organization.

Blazed a New Trail

The proposed field of work was something entirely new, at least as far as organized investigation was concerned, and it was therefore necessary, not only to decide upon the questions to be taken up, but also to establish a systematic procedure of investigation, and, more important still, to train a personnel capable of studying intelligently the questions involved.

The first step was to lay out a schedule of problems for investigation. This quite naturally comprised chiefly questions the existence of which had already been generally recognized among mill men for some years. Typical of these were: The relative advantages of two and three process picking; the best beater speed to use in pickers, and the relative spinning values of various lots of cotton. In the company's earlier tests these were in general the kind of questions investigated.

Both Laboratory and Mill Work

The test procedure employed at first was very simple. Working upon the basis that a test is essentially a comparison, a complete unit of standard mill machinery was installed in the company's laboratory at 1020 Washington Street, Boston. This comprised machinery from the opening process through weaving, together with standard machinery for testing yarn and fabric. A series of manufacturing tests was then started. In each of these a quantity of cotton was run through a standard organization of processes, while a similar quantity was run through a second organization, differing from the first only in the particular matter which was the subject of investigation. The yarns thus obtained were then tested and a comparison made of the resulting figures.

From these earlier tests a considerable amount of valuable data was compiled, which showed in a general way what was good practice as distinguished from poor; but it was found that in most cases the range of good practice was comparatively wide, and that many of the questions investigated took in problems which could be settled satisfactorily only by tests of long duration in the mills under actual mill conditions, while others could be settled only by a study of fundamentals. After some further investigation, it was finally decided to institute a system of testing within the mills and to confine the work of the laboratory to the preliminary investigation of entirely new and unusual features of a basic character and to such questions as required especially the exercise of exact scientific analysis.

Three Distinct Activities

During this earlier period of the company's history, the evolution of laboratory procedure and systematic analysis was progressing rapidly. While the organization for making manufacturing tests was gradually shifted to the mills, the work of other departments gained in importance correspondingly. What had at first been a crude and imperfect organization for testing the strength of yarns and fabrics broadened out into three distinct organizations: one for analyzing cotton fibre; a second for studying the physical properties of yarn, and a third for analyzing and testing fabric. In addition, there were developed a photographic laboratory, a chemical laboratory, and a small machine shop for developing new devices and inventions. Each of these departments is now organized as a separate unit under highly specialized administration, and each constitutes a separate process in the course of investigations. Moreover, each department has the direct assistance of the others.

Cotton Selecting Machine

One of the various lines upon which work has been done is the analysis of cotton fibre. It had long been recognized that the usual method of differentiating between cotton fibres —the pulling of staple by the classer —is far from perfect. For the purpose of securing a more exact method of measuring staple, an electrically driven instrument was devised, by which individual fibres are drawn from samples of raw cotton and automatically laid out on a velvet ribbon in such a way that their length can be readily measured. This instrument, illustrated in Fig. 1, has been in use in the company's laboratory since May 15, 1921, and application has been made for its patent. It has made it possible to determine with exactness the average length of staple of any particular sample of cotton, without such expenditure of time as to make the process impracticable.

More important than the measurement of the raw cotton has been the measurement of fibres contained in yarns and in woven fabrics. This has proved most helpful, as it has been found possible by obtaining a large number of determinations to plot a frequency curve of the kind shown in Fig. 2. When such a curve is obtained, it can then be compared with curves similarly obtained from cotton samples of known character and staple, and a fairly accurate estimate can be formed of the material used in the particular yarn or fabric. This results from the fact that different varieties of cotton each have their peculiar characteristics as regards length distribution.

Fibre Knowledge Incomplete

Beside the investigation of fibre length, studies have also been made of the spirality, diameter and tensile strength of fibres. These studies have shown that while undoubtedly each one of these factors is closely associated with the spinning value of the fibre, it has nevertheless been impos-

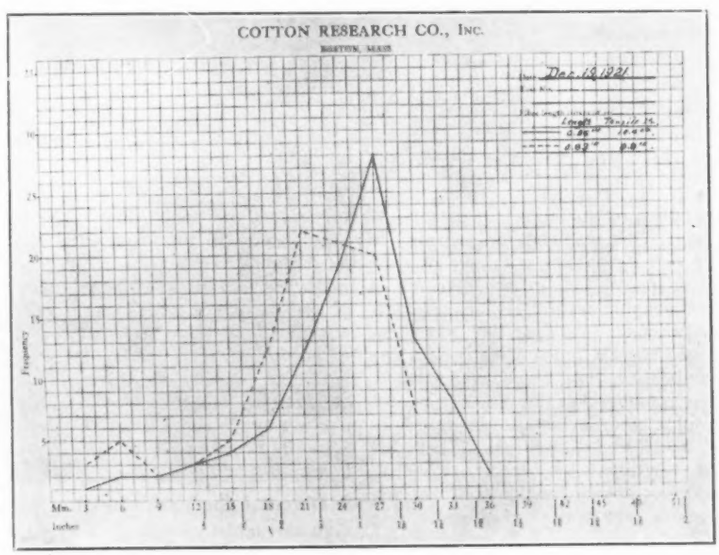


Fig. 2

* Manager, Cotton Research Co., Boston.

sible as yet to trace directly the relative importance of each factor. Results obtained would seem to indicate that length of staple, combined with tensile strength, exercise a much more important influence than other factors.

It will be readily understood that the study of diameter and spirality, involving as it does the use of the microscope and photography, is very much involved. Determinations of this sort are lengthy and cumbersome; but they must necessarily be so, for the interest is not primarily in a simple test, but is centered about the determination of the basic facts which explain to us why cotton is desirable. It is felt that after these things are determined a simple test may be devised which will give a proper answer, and at that time the measurements may be considered from a commercial view point.

Apparatus for Yarn Testing

In the testing of yarns, a highly standardized procedure has been worked out. The testing room is kept at a constant humidity, which, together with the use of the Emerson conditioning oven and Scott testing apparatus, insures that all results obtained shall be strictly comparable.

To supplement the standard yarn testing apparatus, it has been possible to invent a machine for testing the evenness, or variations in density, of yarn. This machine is illustrated in Fig. 3. By passing a sample of yarn under point "A" in the machine, a photographic record "B" is automatically made, showing the yarn enlarged several times, with its local irregularities very much exaggerated. The comparison of these photographic records has afforded extremely valuable information. That this has already been recognized elsewhere is shown by the fact that the machine was in use only a short time before it was copied by other interests. It has been in use in the company's laboratory since December, 1920, and application has been made for its patent.

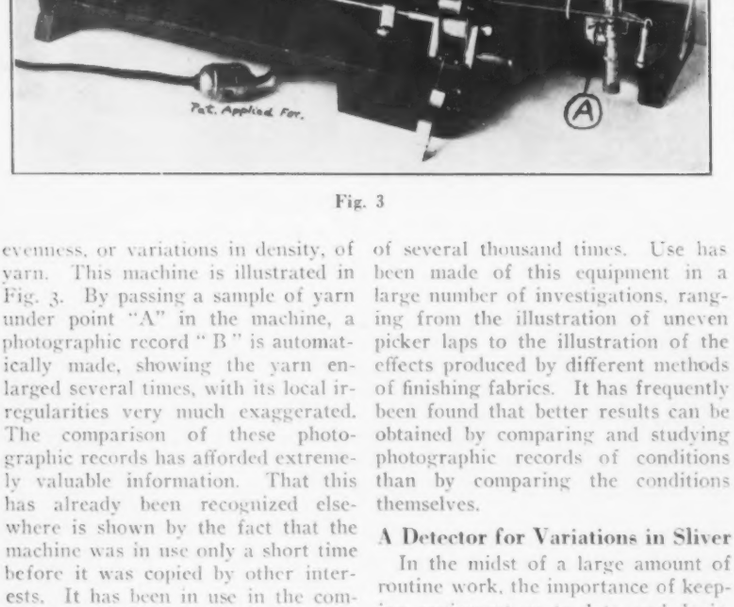


Fig. 3

Systematic Records Essential

Fig. 4 illustrates the system in use for analyzing fabrics. This is the front page of a two-page form used in recording such analyses. The second page of the form is used for detailed work, while the page shown provides a complete record of the test, describing the sample, the conditions under which the analysis was made, the method of analysis, the results obtained, and the identity of the investigator. This is only one of several forms which have been found to facilitate the operation of a standard, well-ordered routine. It will be noted that this form is available for all kinds of fabric, from fine voiles or lawns to heavy duck and paper felts.

Completeness of Facilities

The steadily increasing importance of chemistry in the textile industry, and the fact that many problems dealt primarily with chemistry, made it essential that a small chemical laboratory should be established. Accordingly, this was done, and there is now an organization specially provided for studying questions in regard to warp sizing, bleaching, dyeing, and finishing. Heretofore it has been considered that warp sizing was a problem of chemistry, but our researches to date indicate very strongly that the problem is one primarily of physics.

To assist in other branches of work, there is provided a complete photographic laboratory equipped with cameras, developing and printing apparatus, and photomicrographic apparatus which allows a magnification

COTTON RESEARCH COMPANY, Inc.
BOSTON, MASS.

Test No. _____
Date Tested _____
Sample marked: _____

TEST CONDITIONS

Strength ____ % R. H. ____ % Reg. ____ % M. C. Corr. to ____ by ____
Weight ____ % R. H. ____ % Reg. ____ % M. C. Corr. to ____ by ____

FABRIC ANALYSIS	CLOTH AS RECEIVED				CLOTH			
	ATMOSPHERIC		CORRECTED		ATMOSPHERIC		CORRECTED	
Width								
Ounces Square Yard								
Ounces Running Yard								
Yards per Pound								
% Sizing or Finished Material								
Gauge and Bow								
	WARP	FILL	WARP	FILL	WARP	FILL	WARP	FILL
Count								
Yarns								
% Crimp								
% Off square								
% Sizing								
Break								

MULTIPLE PLY YARNS AND CORDS	ATMOSPHERIC		MOIS. BASIS	
	WARP	FILL	WARP	FILL
Size (Approximate) Single				
Size " in Ply				
Twist—Singles				
First Ply				
Second Ply				
Third Ply				
Twist Contraction				
Size (Actual) Single				
Size " in Ply				

TEST METHOD & MACHINE: _____

B626 Tested by _____

Fig. 4

much progressive work, especially in constructing testing instruments. In addition to the mechanical fibre selector and the yarn evenness instrument already mentioned, a particularly useful instrument has been constructed for detecting the evenness, or unevenness of sliver and roving. This instrument is shown in Fig. 5. It has been in use in the laboratory since October, 1920, and application has been made for its patent.

As shown in this illustration, the sliver or roving is passed under a movable point under very heavy pressure. As this point moves up and down according to local irregularities in the sliver or roving, the movement is transmitted by means of a lever arm and inked pen to a roll of paper, of several thousand times. Use has been made of this equipment in a large number of investigations, ranging from the illustration of uneven picker laps to the illustration of the effects produced by different methods of finishing fabrics. It has frequently been found that better results can be obtained by comparing and studying photographic records of conditions than by comparing the conditions themselves.

A Detector for Variations in Sliver

In the midst of a large amount of routine work, the importance of keeping equipment up to date, and devising improved equipment, has not been forgotten. Beside investigating a number of inventions and proposed improvements brought from outside the organization, the operation of a small machine shop and drafting room has enabled the company to do

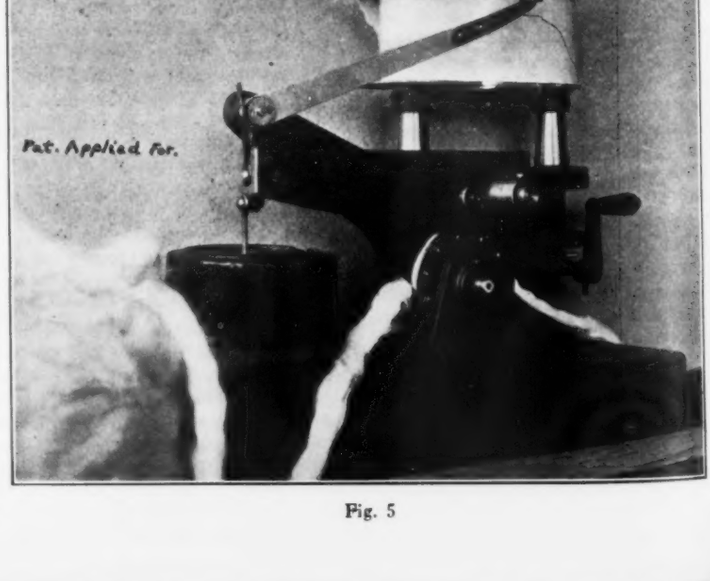


Fig. 5

moving at a constant speed in relation to the movement of the sliver or roving. In this way, a graphic chart is produced as shown in Fig. 6. In this illustration Fig. A shows card sliver, while B shows finisher drawing. This instrument has proved particularly useful in determining the effects of drawing processes. It should be noted that this, and also the other instruments devised, are really tools to be used in the work of research. The progress of the work may at any time lead to the discovery of better tools to take their place.

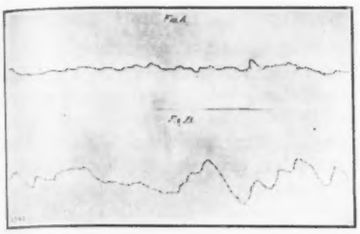


Fig. 6

Practical Application of Research

It has been stated in an article recently published in a certain textile magazine that "The lack of what might be termed analysis or investigation is the frequent cause of confusion in a mill organization," and again that "the overseer in a department is so close to his work that often he becomes accustomed to seeing things that are wrong without having any impression made on his mind, whereas a person from outside his department would promptly point them out." This is a very well stated description of a condition which exists in only too many mills—a condition which the founders of the Cotton Research Company well understood. It is a great tribute to their foresight that the chief purpose of the company has been to remedy this condition.

As a means of accomplishing this result, the company with the aid of the mill men has instituted a system of practical study, and a periodical review is made of each department by a group of experienced observers. These men have been trained to make careful observation and to use correct methods of analysis, an analysis which is purely the recording of facts as they exist and is really a study of variation. The investigators are not manufacturers, but are primarily investigators trained in the determination of variation.

They examine the condition of the machinery, the methods of operation, and the efficiency of the operatives, and in this way obtain an estimate of the existing variations and the factors wherein the particular practice differs from practice elsewhere. Frequently conditions are discovered which require some further study before it is possible to effect improvements. In such cases the value of variations in practice, and the study of quality, is made the subject of a very careful laboratory analysis, which in turn is frequently supplemented by long-time tests in the mills. It is this sort of work which has taken the place of the manufacturing tests originally undertaken in the laboratory. Though not intrinsically of great value, these earlier tests were of the very greatest assistance in training personnel to observe conditions closely and to draw accurate conclusions, a training which is now proving invaluable in the more practical research work in the mills.

Mill Standards and Efficiency

While the periodical review, or "mill survey," as it is called, provides a clear and accurate statement of the physical condition of the mill and each of its departments, it does not necessarily explain the relative importance of each individual factor. This is something that can be ascertained only by the comparison of several such surveys, together with the records of the mill as regards production, waste, and quality of product. For some time an important part of the work of the laboratory has been the compilation and charting of statistics showing the quality of work and the amount of waste made in the several mills.

Sometimes a survey indicates that the procedure followed in mill "A" should produce a higher grade of work than that followed in mill "B" which is using the same cotton and making the same character of product. In such cases it is possible to examine the statistics of yarn strength and waste for the period in which the survey took place and to establish definitely the effect of the particular condition in question. Again, a survey may indicate that the roll settings in mill "A" are different from those in mill "B" for the staple that is being run. In several cases of this sort, it has been possible to refer samples of the sliver, roving or yarn, as the case may be, to the laboratory for analysis. By examining these samples, in comparison with others, it has frequently been found possible to check the observations made during the survey, and by so doing to raise the standard of the work. The importance of this sort of thing cannot be over-emphasized. It really brings to the assistance of the man in the mill the analysis or investigation, the lack of which has been called "the frequent cause of confusion in a mill organization."

The progress of our work has been almost entirely due to the patience of the men in the mills and their desire to make a success of this sort of assistance.

McCallum Company's New Mill

Three-Story Brick Mill Construction Manufacturing Building—Unusual Attention to Employes' Welfare

THE McCALLUM HOSIERY COMPANY, of Northampton, Mass., has just completed a new mill in Philadelphia to provide an increased capacity for dipped hose. Considerable care and judgment were exercised in the selection of a site and much thought was given in this connection to the welfare of the employes, particularly as applied to the housing conditions. The site selected for the mill is on the Roosevelt Boulevard or Lincoln Highway, the direct route between Philadelphia and New York City. As in any city, there are certain well-defined manufacturing districts with resulting congestion in the housing problem, and the semi-residential section in which the site chosen is located offers unlimited possibilities for homes for the employes in a good environment, within easy access to the center or shopping district, railroad depots, and various excellent markets where the commodities of life may be secured.

To prevent incongruity of architecture with the surroundings, a building of tapestry brick construction, with limestone copings and wide, ample steel window frames was decided upon. It is of generous dimensions, 85x174 feet, 3 stories high, and stands on a lot 150x350 feet surrounded by a steel wire fence.

New Mill of McCallum Hosiery Company in Philadelphia

The building, standing well back from the street, is surrounded by a spacious, well-kept lawn, beautified by shrubbery. It is of slow-burning mill type construction, of approved Philadelphia building code standard, open fire stair wells, etc., with floors of 13, 14 and 15 feet headroom and areas of 14,200 square feet.

Arrangement of Departments

On the ground floor are located the supply stores, storage vault, generator and switch-board room, boiler room, men's room and women's rest room. Here also are located the dining and recreation rooms for all employes. Modern washing facilities are provided throughout the plant by enameled wash sinks and all toilet rooms have the mastic floor coverings.

On the second floor is located the winding department, equipped with No. 90 direct drive Universal cone winders, direct drive Atwood skein winders and direct drive Allen backwinders. In the seaming and looping departments, located on this floor, they have Union Special seamers set up on "American" safety tables, while the loopers or joiners are of the Steady Dial type, also set up on "American" safety tables. In using these tables speed transmitters are integral with the table; consequently, aside from offering greater freedom from vibration, they avoid the purchasing, installing, etc., of individual speed motors.

On this floor, too, is located the room given over completely to the boarding department. The ovens are of the Proctor-Schwartz type and a special arrangement of ventilation by means of ducts and blowers helps to eliminate the smoke and fumes, so obnoxious where the ovens are set up in an open room in which many persons are working.

Following a progressive manufacturing policy, the mending and inspecting department is located on this floor also, and goods passing through this department are turned over to the shipping department located close by. The superintendent's office, together with the general offices, are located near the front door on this floor.

The top or third floor, aside from the small amount of space given over to a small machine shop and process stores room, is devoted exclusively to knitting machines. On this floor is shown the result of considerable thought on the type of flooring and construction to use.

The building is sprinkled throughout with glass disc sprinkler heads, connected up with the city water supply and reinforced by a secondary supply obtained from a 50,000 gallon tank, 120 feet high.

The plans and specifications of the building were drawn by the contractors, W. W. Lindsay Company, of Philadelphia, under the supervision of the McCallum Hosiery Company plant engineer, G. R. Kintzel. Throughout the plant are improvements and innovations whose design and construction were supervised by W. Drexel, the superintendent of the McCallum Hosiery Company Philadelphia Mills.

Essential Reports For Textile Executives

Should Be Simple, Comparable, Regular and Prompt—Any Elaboration Designed to Show More Than Salient Features Should Be Confined to Necessary and Useful Information—The Financial Forecast, or Budget, Is Industrial Generals' Campaign Map

*By Eugene G. Boutelle**

THE presentation at frequent and regular intervals of detailed information regarding the activities of a textile mill is an essential aid to its management. Where mills are managed at a distance, or where the board of directors takes an active part in management, a well arranged set of executive reports exhibiting the salient features relative to the progress of affairs is invaluable.

The character of the information thus disclosed, obviously, is important. All necessary detail, of course, must be embraced, but the non-essential has no place in reports which are expected to serve useful purposes.

The kind of information is important, but no less so is the manner and time of its presentation, which should be in accordance with a predetermined plan always in the same form and order, with provision for the comparison of current results with those of the recent past. The reports must be easy to read and to understand, but if they are not submitted promptly most of their effectiveness will be lost.

The scope of this article is not intended to cover all of the reports which may be helpful in the operation of all types of mills, but representative examples of the principal statements will be illustrated and suggestions offered for the development of others. Over-elaboration, however, should be guarded against, the object being to exhibit salient features rather than complete detail.

Chief Features of Progress

The financial progress of the mill will be considered first, of which the chief features ordinarily requiring attention and study may be named as follows:

Financial condition at the close of each month.

Working capital.

Ratio current assets to current liabilities.

Investment of surplus funds.

Notes and accounts receivable.

Inventories.

Plant assets and depreciation.

Liabilities.

Surplus or net accumulation of earnings.

Financial forecast.

Monthly profits in total and on each class of goods produced.

Unfilled orders.

Condition at Close of Month

The financial condition of the mill at the close of a month is exhibited by means of a balance sheet as shown in Schedules I and I-A herewith. Both assets and liabilities appear in the order in which it is expected that they will be liquidated, and columns are provided to show the increase or decrease of each item from the preceding month and from the beginning of the fiscal year.

Current assets are considered to be those that will be realized within one year of the date of the balance sheet. Likewise current liabilities are those obligations which must be met within one year. The difference between the totals of current assets and current liabilities represents the available working capital, and a healthy financial condition ordinarily is indicated when total current assets are at least twice the amount of total current liabilities. In the example given, the amount of working capital appears at the foot of Schedule I together with the ratio of current assets to current liabilities. Increases in these items since the beginning of the year will point to improvement in the mill's quickly available resources.

The Investment Account

Surplus cash frequently is invested in marketable securities which produce a greater income than bank interest and in case of need can be quickly turned into cash. Such securities, ordinarily, are carried at cost, and a comparison with the market value, for which space is provided in Schedule I, is of obvious in-

* Staff of Lybrand, Ross Bros. & Montgomery.

SCHEDULE I
TEXTILE MILLS CORPORATION
BALANCE SHEET

ASSETS	Date: This Date	Increase or Decrease (Decrease in red): From Preceding Month	Increase or Decrease (Decrease in red): From Beginning of Year
Current:			
Cash			
Marketable securities (market value $)			
Notes receivable:			
Customers			
Other			
Accounts receivable:			
Customers			
Other			
Inventories:			
Raw materials and supplies			
Work in process			
Finished goods			
Total inventories			
Total current assets			
Permanent investments			
Plant:			
Land			
Buildings			
Machinery and equipment			
Total plant			
Less depreciation reserve			
Net plant value			
Deferred charges:			
Prepaid interest			
Unexpired insurance premiums			
Total assets			
Working capital			
Ratio current assets to current liabilities			

SCHEDULE I(A)
TEXTILE MILLS CORPORATION
BALANCE SHEET

LIABILITIES	Date: This Date	Increase or Decrease (Decrease in red): From Preceding Month	Increase or Decrease (Decrease in red): From Beginning of Year
Current:			
Notes payable:			
Bank loans			
Other			
Accounts payable:			
Vendors			
Other			
Accrued liabilities			
Dividends payable			
Reserve for Federal income taxes			
Total current liabilities			
Funded indebtedness			
CAPITAL			
Capital stock:			
Preferred			
Common			
Surplus:			
Balance at beginning of year			
Add profits for year to date			
Deduct dividends declared			
Total surplus			
Total capital			
Total liabilities and capital			
Detail of dividends declared since beginning of year:			
Preferred $			
Common $			

terest. When these investments are numerous a detailed supporting statement will be useful. Likewise when there are numerous depositories for cash a statement showing the amount carried in each bank often will be of interest.

Details of Receivables Important

Good management demands that notes and accounts receivable from customers be kept at the lowest amounts consistent with the requirements of the business. The products of many mills are marketed through selling houses who guarantee and collect the accounts, but with those who extend credit and collect their own accounts the only good reason for a continued increase in notes and accounts receivable from customers, ordinarily, would be a corresponding increase in business.

Notes receivable as shown on Schedule I, if numerous, should be supported by a detailed statement showing for each note its date, name of maker, endorsement and collateral if any, due date, amount and interest rate, together with explanation relative to overdue items, steps taken toward collection and amounts reserved against probable losses.

Accounts receivable should be analyzed to show the total amounts not yet due, thirty days (and less) overdue, thirty to sixty days overdue, and more than sixy days overdue. This should be followed by the names and the individual amounts owing, of at least those customers whose accounts are more than sixty days overdue. Where the nature of the business will allow a close adherence to the terms of sale, the names on all accounts which are at all overdue should be shown. As in the case of notes receivable explanations relative to collection of the older accounts together with the amount reserved against probable losses should appear.

Hazards Reduced by Inventory

Perhaps unwise buying and the carrying of excessive stocks of raw materials and unsold finished goods is responsible for more mill failures than any other one factor.

The mill whose products must be made up largely in advance of the selling season has the most hazardous situation with which to deal as regards inventories, and, conversely, the mill which "sells and buys," or in other words enters into contracts for sales of its goods and simultaneously or, nearly so, protects itself with purchases of raw material is in the most fortunate position.

Inventories are worthy of constant attention by the thoughtful executive. The amount that must be carried in order properly to take care of a given volume of sales can only be fixed by experience and will vary with different products, methods of manufacturing and marketing, etc. A barometer of the situation is the fluctuation in inventories shown on the balance sheet, Schedule I.

In most cases a statement in support of inventories as shown on the balance sheet will be indispensable. It should be prepared in more or less detail depending upon the nature of the mill, but ordinarily at least the different kinds, quantities and values of stock carried should appear together with the portion covered by sales contracts and that which is available for new business.

Plant Expansion and Depreciation

Expansion of plant beyond the limits of profitable use is a frequent source of trouble, and any considerable increase in this item as shown in Schedule I will engage the attention of the vigilant executive. Additions to plant should be strictly controlled. The best practice calls for authorization by the board of directors of all expenditures for plant, equipment or other fixed assets, transmitted in writing to the agent, treasurer or other managing executive of the mill. As a matter of expediency, certain persons can be given blanket authorization limited to minor amounts. Increases to plant shown in Schedule I should be supported by a statement showing the amount expended for each item and referring to the written authorization.

In the past a quite general practice among textile mills has been to carry plant at a fixed amount and to charge off all additions as soon as acquired; no allowance was made for depreciation on the theory that the additions and replacements written off were an adequate substitute for a definite depreciation policy. With growing plants it was usually more than ample as far as value was concerned, and with the advent of the excess profits tax the capital invested in plant assets could not be shown with any degree of accuracy without an expensive reconstruction of the accounts from the beginning. Other mills carried plant assets at approximate cost, but wrote off depreciation annually in varying amounts dependent upon volume of profits.

Whatever is done on the books, the cost of all plant assets must eventually come out of profits, and logically should be provided for in the selling prices of finished goods. From this point of view a definite depreciation policy is dictated by the aim to include in cost of production, on which broadly selling prices must be based, a regular and adequate allowance for the value of plant used up in the production of goods.

That the established policy is being carried out is a responsibility of the management and the changes in the depreciation reserve as shown on Schedule I will serve to indicate the situation. More detailed information will be required, however, because the reserve is likely to be reduced from time to time by the cost of major repairs which lengthen the life of the assets and by adjustments for items discarded.

Analysis of Profit Accumulations

On the liability side of the balance sheet (Schedule I-A) bank loans, if numerous, will require a supporting detailed statement and in some cases additional information relative to other items may be called for.

Under surplus on Schedule I-A the balance at the beginning of the year appears, together with the profits since accumulated and the dividends declared. The net increase to surplus, of course, represents the net accumulation of profits for the period, and the various other increases and decreases on both sides of the balance sheet (Schedules I and I-A) show how the profits have been utilized.

A balance sheet, such as is illustrated, can be readily drawn off at the close of each month from a well arranged set of accounts, with which is incorporated adequate methods for determining cost of goods produced and sold together with the value of materials, work in process and finished goods remaining in inventory.

SCHEDULE II
TEXTILE MILLS CORPORATION
FINANCIAL FORECAST
Date

Month 1925	Accounts and Notes		Unfilled Orders		Anticipated		Totals	
	Receivables	Payables	Sales	Purchases	Receipts	Disbursements	Resources	Outlays
	A	B	C	D	E	F	G	H
Jan.								
Feb.								
Dec.								

Esesntials of Budget

While the balance sheet is indispensable it shows only the financial condition of the mill at the moment. Farseeing managers will not be content with this alone; they will insist also upon a forecast of the future. A complete forecast of operations, estimated for a given future period is called a budget. Consisting of estimates of sales, costs, expenses and profits, it can be of the greatest aid in preliminary planning of production and finance.

The subject cannot be treated exhaustively here, but in Schedule II a simple form of financial forecast is shown. It is intended to place before the executive only the crystallized results of detailed estimates. A brief description of the methods to be used in preparing this statement follows:

In columns A and B the amounts of notes and accounts receivable and payable as they appear upon the current balance sheet should be entered against the months in which it is expected payments will be received or disbursements will be made. Unfilled sales orders should be entered in column C opposite the months in which it is estimated that the proceeds will be received. Similarly, unfilled purchase orders should be entered in column D opposite the months in which it is estimated payments must be made.

So far we have dealt with fairly definite information, but for the figures to be placed in columns E and F, reliance must be placed wholly upon estimates. Suppose the date on which the report is rendered to be January 1, then in column E against the month of January, the total of the following items should appear:

(a) Cash balance as at January 1.
(b) Estimated sales not already entered in column C for which payment may be expected in January.
(c) Estimated receipts from notes to be discounted and from all other sources not already entered in column A.

In column F should be entered the sum of the following:

(d) Estimated purchases in addition to those already in column D and for which payment must be made in January.
(e) Obligations to be met additional to those already entered in column B.

The total resources and outlays should then be carried into columns G and H respectively, that is, column G should be the total of columns A, C and E and column H should be the total of columns B, D and F. For the month of February the above procedure should be repeated, but the excess of total resources over total outlays as shown in columns G and H for January should be substituted for the cash balance, which in making the figures for January was, of course, available from the balance sheet. If there should be a deficiency of total resources as compared with total outlays for January, then it should be included with other items in making up the anticipated disbursements for February (column F). If the deficiency should be large, it might be necessary to secure additional loans and in this case the amount to be realized from such a source should be included with other items making up the anticipated receipts for February (see item (c) above). When such anticipated loans are set up among the receipts (column E) repayment must be provided for in a subsequent month and included in anticipated disbursements (see item (e) above). The procedure outlined above should be repeated for each subsequent month as far as deemed advisable for a proper consideration of future conditions.

Unfilled Orders

Since these anticipated receipts and disbursements will include loans to be placed, supplementary statements will be needed, showing in detail for each month, how the estimated or anticipated receipts and disbursements were arrived at. Included with these

SCHEDULE IV
TEXTILE MILLS CORPORATION
SALES AND GROSS PROFITS

Date

Classes of Product	Net Sales	% to Total	Cost of Sales	% to Sales	Gross Profit	% to Sales
This Month ( )						
Total						
This Year to Date (months)						
Total						
Same Period Last Year (months)						
Total						

SCHEDULE V
TEXTILE MILLS CORPORATION
SALES ORDERS BOOKED AND UNFILLED

Date

Classes of Product	Orders Booked		Unfilled at Close of Month		Yards Available from Stock on Hand	Yards to be Made
	Yards	Sales Value	Yards	Sales Value		
This Month ( )						
Total					Average monthly capacity	
Preceding Month ( )					Will sold up to	
Total					Average monthly capacity	
Same Month Last Year ( )					Will sold up to	
Total					Average monthly capacity	
					Will sold up to	

will be a schedule of orders booked exhibiting the amounts expected to be received from this source each month; and a schedule of commitments or purchase orders placed, arranged to show the payments which must be met each month.

Factors Entering Into Earnings

The accumulated profits for the year to date are shown on the balance sheet under the heading of surplus. But something more than a mere knowledge of the amount is necessary for a comprehensive view of the situation. Schedule III shows the principal factors entering into the earnings of the current month, the current year to date and a comparison of the latter with the same period of the previous year. In the column for percentages to sales will be indicated the proportions of cost, gross profits, expenses, etc., per dollar of sales, and improvement or the reverse will be plainly seen in the comparisons.

The Distribution of Overhead

A significant feature of this statement is the loss or gain from restricted or more than normal operation shown directly following gross profits. Under restricted operating conditions, overhead expenses can usually be reduced somewhat, but not in proportion to the reduction of product resulting in an inflated unit overhead cost if the entire amount of expenses is considered applicable to the restricted volume of product. Conversely, with a greater than normal production, overhead will not be increased in proportion to the additional output and the unit cost of overhead will be correspondingly low. Obviously under competitive conditions unit cost calculations for the purpose of fixing selling prices may not include anything more than normal overhead if business is to be secured.

The logical procedure for arriving at selling prices, inventory valuations at cost, and for other purposes is to apply to the cost of each production unit only such an amount for overhead as would be the case if the mill were operating at its normal capacity. The difference between the total amount so applied, or absorbed, and the actual expenses will represent, with reasonable accuracy, the loss or gain arising from under normal or more than normal operation as the case may be.

May Need Unprofitable Lines

Few mills of any considerable size confine operations to one class of product and many produce numerous distinct varieties, of which not all are equally profitable and some may even be sold at a loss. To the unthinking the proper course seems obvious, namely to eliminate the unprofitable and less profitable classes continuing only those on which the larger gains are realized. Too often such a course would be disastrous because the unprofitable lines frequently must be supplied to help the sale of the others, and again enough business on the more profitable numbers cannot be secured to fill up the mill, resulting in a lessened volume of output and a consequent loss from restricted operation. Naturally the sale of the more profitable kinds should be encouraged in every possible way and that of the less profitable numbers held back, but not to the extent of decreasing the volume of business. However, knowledge of the conditions must be had in order that good judgment and common sense may be brought to bear upon the problem and Schedule IV is designed to present the volume of business done and the gross profits realized for the current month compared with the results attained in prior periods on each line of goods manufactured.

SCHEDULE III
TEXTILE MILLS CORPORATION
PROFIT AND LOSS

Date

	This Month	%	This Year to Date --- Months	%	Same Period Last Year --- Months	%
Sales						
Less returns and allowances						
Net sales		100.0		100.0		100.0
Cost of sales:						
Materials purchased						
Direct labor						
Overhead expenses						
Inventory decrease						
Inventory increase (red)						
Total cost of sales						
Gross profit						
Deduct loss from restricted operation of mill						
Add gain from more than normal operation of mill						
Adjusted gross profit						
Administrative and selling expenses						
Net operating profit						
Other income: (to be detailed)						
Other deductions: (to be detailed)						
Net profit before deducting Federal income tax						
Federal income tax						
Net profit for the period						
Adjustments of prior period: (to be detailed - deductions in red)						
Addition to surplus						
Surplus at beginning of period						
Dividends declared						
Surplus at end of period						

The position of the mill with respect to its unfilled orders is vital as regards its future welfare, and as a means of spurring on the selling organization to greater efforts, if that be necessary. Schedule V is a simple form of statement exhibiting the principal features of the situation.

Reports May Be Elaborated

These five schedules, if accurately and promptly prepared at the close of each month will suffice to keep the management or active board of directors in touch with the trend of financial progress. The statements illustrated have been made simple in form with the purpose of bringing out the high lights, but they will lend themselves readily to as much elaboration as appears necessary. A number of supplementary statements have been described and suggestions for others will appear in the adaptation of the plan to the affairs of various mills. Only such information as is necessary and useful in the direction of the mill's finances should be incorporated with the regularly issued reports.

(To be continued.)

A Course in Economics for the Worker

Simple Facts Regarding Manufacturing Costs and Profits That Will Rob the Labor Agitator of One of His Chief Trouble-Making Weapons if Properly Presented to the Operatives—Things to Be Observed and Avoided in the Presentation

By *Eugene Szepesi**

BY a freak twist of human nature the average employe will swallow the wildest, the most ridiculous statement as a fact; if it appeals to his prejudices the wilder the better, and this weakness is the chief instrument played upon by the labor agitator, who fattens upon the carnage of misunderstanding and takes, therefore, full advantage of the fact that the average worker is usually unversed in matters of finance.

This story of the packer and the painter is based on an actual occurrence, and similar incidents occur almost daily in every mill in the United States. The textile industry is no exception. This fact is probably known to every manager in a remote way, but it is doubtful whether anyone of them has weighed carefully the harmful effects of such malicious or ignorant information, and right ways and means to counteract the ill effects of such misinformation. The fact is that, in the mind of the average mill worker today, a manufacturer is a person who makes a fabulous return on his investment, due entirely to the underpayment of his employes, and who could double or even treble the wages he pays without seriously affecting his profits.

This is what the labor agitator whispers into his ears; his corner grocer confirms the lie; his fellow worker says he has heard the same story, and then it becomes a reality in his mind.

The fabulous profits made by the manufacturers is the perennially favored argument of the labor agitator, and always has the desired effect of planting in the worker's mind suspicion of his employer and renders peaceful relations between them almost impossible. But there are many other direct effects of such misinformation on manufacturing profits. Much wanton waste and inefficiency in mills can be traced directly to this malicious agitation, the workers basing their conclusions on the hearsay or the fanciful imaginings of a trouble maker and resort to practices which they know in their hearts are downright dishonest, but that are justified to their perverted minds by the fact (?) that the manufacturers are making too much money anyway and withholding from the wage earners their proper share.

Must Get Facts Before Workers

This miseducation of the worker has attained such proportions in the textile industry that the manufacturers can no longer afford to maintain their past policy of silence, but will have to undertake, either through united action or individually; the education of the employes regarding manufacturing profits, and put before them undisputable facts proving that the fabulous sums earned by capital are but a myth, and that the net return on capital investment is, in many instances, actually below the justified return. The fact is that most of the workers themselves would hesitate to invest their savings at the high risk and limited return the manufacturers are obtaining on their business.

The main problem of such an educational campaign is the method to be used in presenting the facts to the workers. Many a well intentioned attempt of manufacturers to draw their workers into their confidence regarding manufacturing costs and profits has miscarried through the lack of proper presentation. The workers misunderstood the efforts of the management, and the information given was in most instances too technical to be understood by the average worker uninitiated into the terms and procedures of finance, and this information through the actions of malicious individuals has been given such a twist that, instead of increasing the confidence of the workers in the management, has tended to destroy it. Prepare the material in such a manner that the average worker will understand it. While the wording should be simple and clear, it should be free from the artificial slangy form. The illustrations of costs and profits should be made in terms and measures familiar to the workers through the associations of their own work and experience.

MISS INFORMATION

An Industrial Tragedy in One Act and Many Mills

Scene: The packing room of a large New England corporation famous for its ginghams.

Time: Noon hour.

Action: One of the packers sits on a box enjoying the blessings of a full dinner pail. A painter, the employe of an outside contractor, examines the fabrics arranged in neat piles. In his tour of inspection he reaches the packer and the following conversation ensues:

The Painter—"Pretty good stuff."

The Packer (between a ham sandwich and a gulp of coffee)—"Ye-ah!"

The Painter—"Can I buy some?"

The Packer—"The shipper sells the remnants."

The Painter—"What's he going to soak me for it?"

The Packer—"Eighteen cents a yard."

The Painter—"That's pretty cheap."

The Packer (with a superior air)—"Don't you worry; the firm ain't going to lose on it. It cost them ten cents a yard to make, and they make eight cents on every yard."

The Painter—"Can you beat that; and the stores soak you seventy-five cents for a yard. No wonder they can afford the Rolls-Royces and the fancy parties you read about."

The Packer—"That's right, Buddy; they could double our wages without batting an eye if they want to and still make more money than is good for them."

Moral: No doubt the painter bought a supply of gingham remnants at 18 cents a yard and told his wife that the manufacturer made 8 cents profit on a yard in spite of this bargain price, and this information (???) traveled to other wage earners' homes via the backyard clothes line, and probably there are a few hundred more workers in that community today who express their indignation over the excessive profits made by the manufacturers and the miserly sum the workers get.

Don'ts That Must Be Remembered

Manufacturers who plan to undertake the education of their workers regarding their costs will do well to remember the following "don'ts," which if disregarded will probably frustrate their efforts:

Don't present a balance sheet. The average worker will pick out certain parts without comparing with the other parts.

Don't use technical terms unknown to them, because the average worker is suspicious and will feel convinced that the facts have been camouflaged for the express purpose of deceiving. The result will be that he will use his own interpretation and draw his own conclusions.

Don't tell them anything of a confidential nature, because such information will travel straight to your competitors.

Don't provide your workers with copies of your information which they can take out of the mill, because it will be circulated through the town and ultimately get into the wrong hands. Put your information on a bulletin board, or on printed slips in their pay envelopes.

A Few Rules Worth Observing

Against the above don'ts there are a number of simple rules which, if observed, will greatly assist in attaining the ultimate purpose:

Give explanations with the least words and use only words that are understood by every worker. Don't use slang, because it will cheapen the purpose.

Illustrations of cost and profits should be made in terms and measures familiar to them through association with such terms in the mill or in their homes.

The profit made through the actual conversion of the product should be given on unit product basis, such as yards, pounds, or dozens.

Never fail to state the amount of money invested in the business, and also what the relation is of the profit to the capital investment.

Never fail to compare this profit made on capital investment with the interest one would gain by investing the same capital as deposits in savings banks, on mortgages, or railroad bonds, showing how much return the capital would bring without the effort and worry of manufacturing.

Never fail to emphasize the portion of this total profit that is paid out as dividends, and how much of it is carried forward as a reserve for exigencies and the expansion of the business.

Emphasize the fact that while pigs are pigs, profits are not always profits. Show that only conversion profits made actually in manufacturing can be considered as real profits, because for every increase of raw material there is at times a corresponding decrease, and if a mill would not preserve the difference gained between low purchase and high sale of materials it would go into bankruptcy when the cost of raw materials decreases, and it has to sell its product for less than it paid for it.

If a business started on a small scale and its expansion was due to the

*Szepesi Industrial Organization, Boston. Author of "Cost Control and Accounting for Textile Mills."

conservation of the accumulated profits, emphasize what large portion of the profits made in the business have been preserved in order to expand and give employment to more men.

Show the amount necessary each year as a reserve for depreciation and maintenance of the buildings and machinery to assure the good working condition of the mill.

Show in simple but striking illustrations why a preservation of the greater part of the profits is necessary to provide a fund for lean times to cover the burden charges.

Illustrations Provided

A few illustrations have been provided to show the possibility of conveying cost information to the workers in a manner that will tell the facts so that nothing but the right conclusion can be drawn.

The arrangement and the wording of the bulletins for providing such information for the employes have a great deal to do with the success or failure of the plan. They should appeal to the imagination of the employe. They should be brief, and the information presented in such a manner that it will have a lasting effect. Here are the illustrations mentioned:

Big Cost for a Small Profit

A pound of yarn is worth $2.50. It takes 32c. worth of wages to convert it into cloth and 38c. worth of other expense that is required for the management of the business. This 38c. is called overhead and includes the samples we must give away, worth many thousand dollars, the rental, depreciation, oversight, insurance, and all other expenses necessary for manufacturing. This means $3.20 for a yard of cloth. To provide the loom and all other machinery and the buildings to make the production of this cloth possible over $4,000 per loom has been invested, and a loom must earn 38c. every hour to provide enough dividends to pay 7½ per cent interest on the investment.

Reserves Are Food for Idle Looms

Every hour the loom eats up 75c. in expenses, provided there is work for it during every working hour of the year. When a loom is idle this expense will go on just the same, and it must come from the profits, and this is the reason why the greater portion of the profits must be preserved. Without this reserve in slack times the business will eat up its own capital and then there would be no business.

Profits That Make More Jobs

Twenty-five years ago when the mill started it had only ten thousand spindles, giving employment to 80 men and women. Today it has thirty thousand spindles and 275 men and women earn here their livelihood. Where did the money come from to increase the business and give employment to more workers? From the profits that were paid out in dividends. So profits are necessary to increase the size of the mill as well as for a reserve for hard times.

Risk and High Interest Rate

If you put money in a bank, they pay you interest at from 3½ to 4½ or even 5 per cent. If you put it in mortgages, you get interest at from 5 to 6 per cent. This business is the result of a similar investment and the stockholders put their money into this business which provides employment for you, and they are entitled to a fair interest or dividend, just the same as they would had they put their money in a bank or on a mortgage. We paid out during the year 6 per cent to our stockholders for their capital investment, because the manufacturing business carries a greater risk than the money that is put into the savings bank or loaned out on a mortgage. Nor did we pay out all we earned, but kept some of it in reserve for a rainy day. We could not provide employment for you unless we had such a reserve.

Bank Interest and Mill Dividends

If you have $10 in the bank and they pay you 4 per cent interest for your money, you receive 40c. at the end of the year. If you have $100 in the bank, you receive $4 at the end of the year. So money must draw interest in proportion to the investment. The stockholders put into this business one and one-half million dollars, and if they had put the same amount of money into the bank they would have received $60,000 for it. We paid them $75,000 on their big investment and the man who has invested in this business only $100 will receive $7.50 as interest. Of course, this is more than the bank would pay, but the bank always pays interest, while in this business there are many times when our stockholders receive nothing, as there are no profits.

The Rainy Day

There is always a rainy day when you least expect it. In business there are rainy days when goods have to be sold at a loss. To provide for such rainy days business has to reserve some of its profits. If it should fail to do so, the business would go bankrupt and there would be no job for anyone.

These are but a few illustrations of the possibility of conveying cost information to the worker. There is almost no limit to what may be said in a manner that will help employes to understand the management's responsibilities. It is education that is badly needed in the industry to help the workers to realize that the share the stockholders receive is not the fabulous sum that is claimed by irresponsible agitators, but often a very meagre and inadequate return on the capital they have invested in the business.

Home Made Cost Systems

Some of Their Most Costly Errors Analyzed—Overhead Distribution Their Bete Noir

By *Ralph E. Loper**

A MANUFACTURER who bleaches and finishes his own cloth stated that he could pay very satisfactory dividends with an over-all profit of one-half cent per yard. An investigation has since shown that the cost system upon which he placed reliance contained errors of more than one and one-half cents per yard, or over three times the average profit obtained in years of good business. It is very evident that some of his styles were regularly sold at a loss while others gave a liberal profit.

Scores of mills are working along today with cost methods which are just as unreliable as this one. In the report of the cost committee of the National Association of Cotton Manufacturers attention was called to several of these typical home-made cost systems. Quoting from the committee's report under the heading of inaccurate cost systems we read: "There are in use among a considerable number of mills cost methods which are very misleading. Often these systems tie in with the general accounts and therefore give the management unwarranted confidence in their accuracy. . . . Since faith in an inaccurate cost system is keeping many a mill from adopting accurate methods, we have described some of the misleading systems repeatedly encountered.

Overhead Per Pound of Cloth

Some treasurers contend that it is not necessary to divide the overhead between the weave room and the various yarn departments to get accurate costs by fabrics. They frequently argue that since they sell only cloth, all these charges must be borne by the cloth eventually so that it does not matter how they are distributed so long as the correct total is included. Therefore, after carefully analyzing their labor cost they revert to the method first described and average the overhead per pound of cloth.

A careful study of the problem, however, shows that it is just as important to correctly distribute the burden as it is to charge each style with its own weaving piece-work cost. The overhead charges in a mill using simple looms will have as much effect upon the cost of the fabrics as the price of weaving. When the mill is equipped with automatic looms, the overhead charges on cloth are often over twice as great as weaving piece work. Any cost system which fails to make each fabric bear its proper share of the overhead is sure to be misleading.

Not a few mills charge all the overhead to the yarn department and assume that it is uniform per spinning spindle, and therefore is greater per pound on fine numbers because of the lower production.

While this method is an improvement over those previously described, it leaves much to be desired because a careful analysis of the items which make up the overhead shows that between 35 and 50 per cent. of them are caused by the mill owning and operating a weaving department, and that they would not obtain in a yarn mill. The results of this method are that the costs of high pick goods and of goods woven on narrow looms are figured too low and the costs of wider cloth and of low pick goods such as warp sateens are figured much too high.

Overhead Charged Per Loom

Still another method which has a great many advocates charges all the overhead items to the weave room and assumes that they are uniform per loom regardless of the style of cloth being run. It happens, however, that between 50 and 65 per cent. of these charges are due to the yarn departments and would not obtain if, as in England, the weaving mill should purchase its yarn. That the charges due to the yarn departments are not uniform per loom is quite evident when we consider that it is possible for two looms to use the same counts of warp and filling and yet produce twenty-five pounds per loom week on one style and between fifty and sixty pounds per loom week on another style. In one case it would be necessary to have over twice as much carding and spinning equipment to supply a loom as would be required in the other. Under this method errors of several cents per pound may occur in the relative cost of fabrics.

Overhead and Direct Labor

Another way to distribute overhead is as a percentage of direct labor. This method has quite a few defenders and books have been written in past years advocating it. The method is easy to use but is inaccurate and misleading for textile mills. A little reflection on the part of any mill man will convince him that there is no uniform relation between the labor cost in each department and the value of the machinery in that department or the power it requires. Both of these items affect that share of overhead which should be charged to a department.

Just how far an average percentage for overhead distribution on the basis of direct labor may depart from the truth may best be shown by the following study based on several mills which have accurate cost records and a proper division of overhead between departments.

By dividing the total overhead by the total direct labor in these mills, we find that the overhead proves to be about 78 per cent. of the direct labor. After apportioning the overhead to each department upon an equitable

* Ralph E. Loper & Co., Fall River, Mass.

basis and then dividing each department's share by the direct labor in that department we have the following results:

Processes through drawing, overhead was 172% of direct labor.
Roving frames, overhead was 84% of direct labor.
Spinning, overhead was 134% of direct labor.
Spooling and warping, overhead was 24% of direct labor.
Dressing, overhead was 93% of direct labor.
Weaving, overhead was 44% of direct labor.
Cloth room, overhead was 68% of direct labor.

Actual Errors of Three Systems

In describing these home-made cost systems the committee has pointed out in a general way the nature of the errors caused by each method. Some treasurers, however, have been inclined to feel that these differences were not very material and that they could not have much bearing on the net profits of the mill.

In order to show exactly what the difference would be in an actual case, the following method has been applied: In a mill which is using a thoroughly modern cost system, we have worked out three home-made cost systems such as were described above in quoting from the committee's report. The results as applied to several actual styles of cloth are shown in the table at the bottom of the page.

In every case the same labor cost was used, also the same production data, and the only difference between the four cost methods lies in the basis used for distributing the same items of overhead.

In the table we have shown under each of the three methods the amount by which it over-figures or understates the cost of the various styles listed.

Causes of the Errors Analyzed

A little reflection on the part of anyone studying this table shows why the various home-made cost systems make the errors they do, on each of the styles listed.

For example, when the overhead is charged uniformly per loom a wide variety of styles such as A-B-I-J-K-M and O, are figured from 2c. to 5c. per pound below their actual cost. Analysis of the overhead shows that it includes many items such as power to operate carding and spinning departments, depreciation on carding and spinning machinery, etc. A glance at the tabulation shows that these styles produce 50 or more pounds per loom week. They are charged no more for carding and spinning overhead than other styles which produce less than half as many pounds per loom week from similar yarns.

Styles D-E-F and G are figured above their true cost because although they produce only from 16 to 26 pounds per loom week, they are charged by this method with just as much overhead per loom for carding and spinning as a style which produces 75 pounds per loom week.

Under this same method style H, which produces only 27.3 pounds per loom week, is shown with a cost 4.66c. below the true cost. This is because the style being a difficult fancy weave should carry more of the weave room overhead than it actually gets when the overhead is averaged uniformly per loom. The same error occurs to even a greater extent on this style when the overhead is distributed uniformly on a spindle basis. The reason is that this method of distributing overhead does not give the style of cloth the full amount of weaving overhead that should go with a fancy style.

When the overhead is distributed as a percentage of the labor cost, the resulting errors are often great and are very erratic. Any style which has a high weaving cost is severely penalized. As the labor cost of weaving goes up, this method increases the overhead charge for carding and spinning, even though the fabric may have a low production as in the case of styles H and C.

So with all the other cases contained in the tabulation, if one will give the matter second thought, he will easily discover the reason why each method penalizes or favors a style which departs from the cost as determined by a system which distributes overhead fairly.

Correct Overhead Distribution

One still encounters from time to time the contention that the method used for including overhead in costs is unimportant. That this is entirely wrong may be seen by comparing the results shown by the three commonly used short-cut methods. One finds that, using the same items for labor and overhead, one method overcharges a style 8c. per pound, while another under-charges it 6c. per pound. Even confining ourselves to simple coarse goods, one method overcharges a style 1.4c., while the other method under-charges it over 2c.

When one stops to consider that a profit of 2c. per pound on many of the styles tabulated above would pay a liberal dividend, it is very evident that accurate cost data can add materially to the profit of a textile mill.

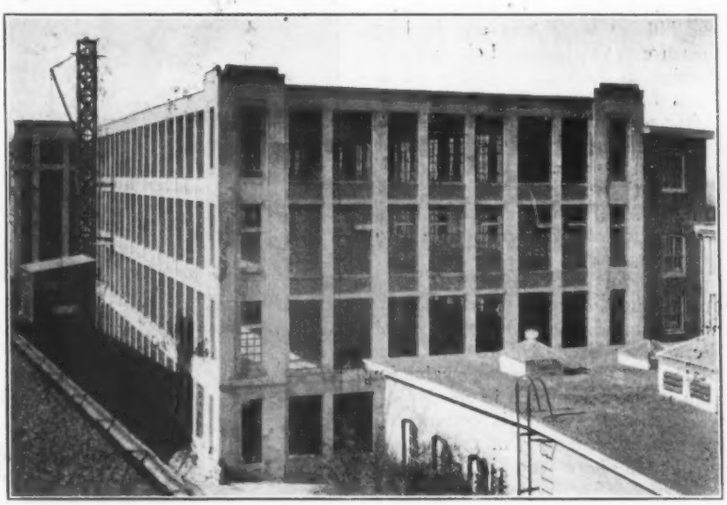
Style. Construction.	Warp.	Fig.	Pounds per spindle week.	Spindles per loom.	Pounds per loom week.	Errors as shown in cents per lb. of cloth. With overhead on a loom basis.	With overhead on a spl. basis.	With overhead as a % of labor cost.
A...36-inch—44/24—6.00 Plain	31	11	1.39	54.1	75.2	—3.08c.	—0.65c.	—0.03c.
B...38-inch—112/64—3.25 W. Sat.	28	30	.93	54.5	50.7	—2.97c.	+0.80c.	+0.73c.
C...33½-inch—68/100—3.00 St. Dam	31	22	1.11	34.7	38.5	—1.38c.	—1.27c.	+3.81c.
D...35-inch—64/112—3.75 S. F. S.	31	25	1.01	25.5	25.8	+1.78c.	**—1.54c.**	**+0.08c.**
E...33½-inch—72/120—3.70 4 Lf. Tw	31	31	.89	27.5	24.5	+1.14c.	—1.63c.	—0.72c.
F...32-inch—72/130—5.25 T. F. S.	36	50	.51	32.0	16.3	+2.93c.	+1.06c.	—0.56c.
G...35-inch—76/150—2.72 S. F. S.	31	25	1.02	23.7	24.2	+2.48c.	—1.77c.	—0.11c.
FANCIES								
H...35-inch—48/40—7.17 Leno	24	36	.91	30.0	27.3	—4.66c.	—6.38c.	+8.16c.
I...38-inch—100/44—3.80 Repp	29	25	.95	57.4	54.5	—3.58c.	—0.31c.	+3.03c.
J...38-inch—80/48—3.26 Oxf.	34	12½	1.25	43.8	54.8	—4.16c.	+0.94c.	+1.34c.
K...36-inch—124/72—2.70 Gab.	24	25	1.09	46.8	51.1	—5.06c.	—3.09c.	+2.37c.
LOW PICK—COARSE YARNS								
L...27½-inch—96/56—2.50 Sat.	17	11	1.64	44.4	72.8	—1.37c.	—1.30c.	+1.22c.
M...34-inch—108/56—3.00 Sat.	24	18	1.18	49.9	58.9	—2.02c.	—0.14c.	+1.40c.
N...37-inch—112/64—2.10 5 H. S.	17	18	1.37	53.7	73.6	—1.76c.	—0.64c.	+0.46c.
O...38-inch—112/64—2.50 Sat.	24	22	1.15	50.5	58.1	—2.16c.	—0.06c.	+1.38c.

Talbot Mills, No. Billerica, Mass.

Build Four-Story Carding and Spinning Mill—Machinery Reorganization in Old Buildings

By *George F. Rivinius*

THE TALBOT MILLS are located on the Concord River, in the town of North Billerica, Mass. They were established in 1857 and have had a gradual growth, by extensions, to their present equipment of 26 sets of cards, 202 broad looms and 10,890 spindles, for the making and finishing of thibets, uniform cloths, cassimeres, billiard cloths, etc.



New Carding and Spinning Plant of Talbot Mills

This growth has resulted in a congestion of some of the departments and in order to reorganize and provide a better arrangement of machinery the management decided last year to erect a new carding and spinning mill adjoining the central wing of the old main mill.

The new mill, 77 by 209 feet, is of reinforced concrete exterior walls with brick panels, four stories in height. The ground floor is of concrete, with beam and slab construction where it extends out over the river. Upper floors are of steel girders and floor beams with plank floors and maple top. The columns are steel, 26 feet on centers and fireproofed. Stairs, toilets and elevator are located in a tower adjoining the mill, which is wholly of fireproof construction.

This new mill will accommodate 12 sets of cards with storage bins on the fourth or top floor. On the third floor provision has been made for the wool sorters, wool storage and 8 sets of mule spinning. On the second floor are located all the sorted wool bins, the wool dropping into storage through openings from the floor above, and 8 sets of mule spinning. On the first or ground floor is located the wool washing and drying and general storage, also the receiving area and the fire pump room.

The new mill is to be electrically driven by power purchased from the Lowell Electric Light Co., a public service corporation in the nearby city of Lowell.

As soon as some of the new machinery is in operation reorganizing changes will be made in the old buildings; a new carbonizing machine will be installed and extensions made to the dye house.

Work was started on this building in May, 1922, and it is now practically completed, with wool washer installed and the cards and spinning machinery in course of erection. The E. D. Ward Company of Worcester, Mass., are the general contractors, under the supervision of Lockwood, Greene & Co., engineers, who prepared all plans and specifications for the building and its equipment.

Operation of the Flexible Tariff Plan

A Liberal Interpretation of Law Necessary to Its Success—Inadequate Appropriation a Greater Handicap Than the Difficulties in Ascertaining Differences in Production Costs—Section 315 Makes Latter Possible—Cooperation of Business Men Requested

By *Thomas O. Marvin**

AMONG the most important of the laws passed by the Congress during 1922 was the Fordney-McCumber Tariff Act which was signed by the President on September 21.

From the time that hearings began before the Committee on Ways and Means twenty-two months passed before the enactment of the measure. No previous tariff bill received such careful scrutiny by the legislative committees or aroused such keen interest on the part of its opponents and supporters. The attention that the bill attracted was due in large measure to the proposed change from foreign to domestic valuation as the basis for levying ad valorem duties. After protracted discussion this proposal was rejected by the Committee on Finance so far as the major basis of valuation of imports is concerned, but the American valuation plan was adopted for coal tar products in paragraphs 27 and 28 where the ad valorem duty on such products is based "upon the American selling price of any similar competitive article manufactured or produced in the United States." The American valuation plan is also recognized in Section 315 where the President is empowered, after an investigation of the costs of production here and in competing countries, to increase or decrease the duties 50 per cent., change the classification, or change the basis of valuation from foreign value to "the American selling price of any similar competitive article manufactured or produced in the United States."

A Significant Departure

For the first time in our tariff history Congress has provided a plan for adjusting rates of duty to changing economic and industrial conditions. It is the first time that Congress has departed from the method of establishing customs duties by processes of legislation and changing the rates only by act of Congress. The departure in this instance is not so radical, however, as it might at first seem to be. Congress has not delegated unlimited power over rates; it has not conferred authority for acts of a legislative character. It still retains unimpaired its constitutional power to lay and collect taxes, imposts and duties. All that Congress has done is to authorize the President, after an investigation of costs of production in the United States and the principal competing countries, to equalize the difference in such costs by increasing or decreasing the rates of duty fifty per cent. In other words, Congress legislates and within the limitations of that legislation the President may act.

Other limitations on the action of the President, besides an increase or decrease not to exceed fifty per cent. are the provisions prohibiting a change from the free list to the dutiable list or from the dutiable to the free list and forbidding a change in the form of duty; for instance, from a specific to an ad valorem duty or an ad valorem to a specific. A change to the American selling price as a basis for ad valorem duties is limited to cases where there are similar competitive products produced in the United States. Another limitation is that there can be a decrease but no increase in the rate of duty when a change is made from foreign to American value.

U. S. TARIFF COMMISSION

Seated, Left to Right: William Burgess; William S. Culbertson, Vice-Chairman; Thomas O. Marvin, Chairman; and Thomas Walker Page. Standing, Left to Right: Edward P. Costigan; John F. Bethune, Secretary, and David J. Lewis

Investigation Precedes Action

Investigations to assist the President in ascertaining differences in costs of production, under the flexible provisions of the tariff act, must be made by the Tariff Commission, and no proclamation can be issued under these provisions until such investigation shall have been made. The changes in classification or in the rates of duty take effect thirty days after the date of the President's proclamation.

The law itself defines the nature of the investigations to be conducted by the Tariff Commission. Primarily the investigation concerns the cost of production of articles wholly or in part the growth or product of the United States and of like or similar articles wholly or in part the growth or product of competing foreign countries, and the changes in classifications or increases or decreases (not exceeding 50 per cent.) in the rates of duty shall be such as are necessary to equalize the difference in the costs of production.

It is evident that a strict application of the cost of production plan would render the flexible feature of the tariff law inconsequential if not, indeed, unworkable. There is no such thing as a standard cost of production either in this country or abroad. Costs differ in different plants and at different times and in different countries. Cost of production is a constantly varying factor and it would be impossible to follow its variations by frequent changes in tariff rates.

While the Commission has the necessary authority to ascertain costs in this country it has no means of compelling a disclosure of foreign costs. There is evidence that the attempt to secure foreign costs will not meet with approbation or cordial cooperation. At a meeting of French manufacturers held recently in Paris to discuss the flexible provisions of our new tariff law the opinion was expressed that "there can be no question of hunting out French costs of production. The diversity of conditions within any industry is such that investigations of this kind could not give results of practical utility." It was pointed out that it is impossible to establish any stable average for production costs, and that if costs were ascertainable the frequent fluctuation of the franc would necessitate constant readjustment of cost findings.

In fact a study of section 315 of the Tariff Act of 1922 has led French manufacturers to the conclusion that they would prefer the American valuation plan to the flexible provisions and that any modifications in the American tariff law that they attempt to accomplish will be undertaken factory channels of diplomatic negotiations.

Mitigating Clause

In view of the inevitable difficulties of applying a strict cost of production program it was fortunate that the lawmakers provided some mitigation of the difficulties by adding to section 315: "That in ascertaining the differences in costs of production, the President, in so far as he finds it practicable, shall take into consideration: (1) the differences in conditions in production, including wages, costs of materials and other items in costs of production; (2) the differences in the wholesale selling prices of domestic and foreign articles; (3) advantages granted to a foreign producer, and (4) any other advantages or disadvantages in competition."

It is through the utilization of this broader field of inquiry that results under section 315 are to be obtained. Difficulties even then will be encountered and there is the further handicap of insufficient appropriations to meet the expense of domestic and foreign investigations of the innumerable items of the tariff law. There remains a valuable line of work in necessary adjustments to changing competitive conditions and the Tariff Commission, in addition to its customary investigations, is developing a plan of work in fulfillment of its new duties that will produce the best possible results under the provisions and limitations of the law. The cooperation of the business men of the country is needed to secure the fullest possible information in regard to costs of production and general competitive conditions and aid the Commission to render efficient and effective service.

* Chairman, United States Tariff Commission.

Manufacturers' Rights Under the Tariff Act of 1922*

For the First Time They Have Equal Rights to Those of Importers—Producers Should Be Prompt to Avail Themselves of the Clauses of the New Law—It Is an American Measure Calculated to Foster American Industries and Should Be Freely Utilized

By *Marion De Vries****

EVERY American manufacturer and producer should realize the new and highly important rights secured him by the Fordney-McCumber tariff law and be prompt to avail of them. The protection of his interest and that of his employes so demands.

The long struggle of American manufacturers and producers for equal rights with importers in matters of tariff construction before the departments of the Government and the courts has by that act for the first time been rewarded by the therein provided methods of assertion of these rights. By what means of logic they had previously been denied is difficult of understanding.

While American manufacturers had for years contended in the courts and before Congress for the exercise of the right of contesting rates of duty and constructions of the tariff law it has never before in its fullness or in any adequate measure been granted. Many years since an American manufacturer, after several unsuccessful attempts, was finally upheld by the United States Court of Customs Appeals in protesting in favor of a higher duty than that levied by a Collector of Customs. The Underwood Tariff Act, however, soon thereafter by express legislation denied this right to American producers.

Early in the hearings upon the present act, in January and February, 1921, the subject was clearly elucidated and forcibly presented to the Ways and Means Committee of the House of Representatives by A. Cressy Morrison of New York. Unto his advocacy and persistent effort we are much indebted for the enacted law. His clear epitome of the situation in his testimony before that committee may well be quoted as a concise analysis of the rights contended for and by the law now provided. He stated:

> A protective tariff involves three parties, though perhaps a revenue tariff may involve but two. In the case of a revenue tariff the two parties are the importer and the United States. In the case of a protective tariff the three parties are the United States, the importer, and the industry affected.
>
> I have gone through the report of the United States Tariff Commission on the revision of the administrative features of the tariff laws. I am not an expert and could not qualify on that at all; and am therefore passing no opinion as to the character of this proposed modification, except to say that a careful examination of this revision discloses the fact that it is built upon the assumption of a revenue tariff; that is, a two-party tariff, involving only the Government and the importer.
>
> So far as I can see, there is nothing in this report of the Tariff Commission which gives the domestic industry, even by inference, any contact with the customhouse, any rights or any opportunity to aid the Government in the collection of revenues or to protect itself.
>
> I feel that such rights should be accorded, especially in the case of a protective tariff.
>
> I wish to make the point now that some consideration under a protective tariff should be given to the American industries . . . I urge you in simple justice to give the same rights of information, protest and appeal to the American producer that are now accorded to the importer and the agent of the foreign manufacturer.

Affects Three Parties

As pointed out by Mr. Morrison, this tariff act directly and vitally affects the immediate interests of three parties: the Government, the manufacturer, and the importer. Heretofore manufacturers were, after presenting their needs at Washington, denied any effectual participation in the construction of tariff acts. Thereafter, while the importing interests were empowered by law to protest against any appraised value, or any rate of duty, or any construction of that law, as applied to any imported merchandise, before the Board of General Appraisers and the courts, manufacturers were not so empowered. Indeed, even indirect intervention was denied them. In consequence, assaults to tear down the secured protection to manufacturers were immediately inaugurated by the importing interests, without any legal right provided the manufacturers and producers to resist, intervene, oppose importers' claims, or to assert a similar right. These constant assaults upon previous tariff acts by importers necessarily resulted, in many cases, in a destruction of intended protection.

Some idea of these activities will be had by the fact that since the Board of General Appraisers was created, June 1, 1890, 1,192,707 protests were filed against collectors' assessments on classification. Many protests so filed never reached the board in due course of administration, being held by collectors for review, or awaiting decision of similar protests by the board. That such was their moral as well as legal right is not denied. On the contrary, it is asserted and justified, for every interested party should have his day in court as to any law affecting his interests. That is simple American justice. But while rightly accorded one party in interest it should not have been denied another party in interest.

While the Government was represented from the revenue standpoint, the legal theory of that representation was rightly one of neutrality in so far as the conflicting interests of importers and producers were concerned. But the protective features of the act had no legally authorized champion. Nor was it just that the burdens of conflicting interests of either importer or manufacturer should be borne or asserted by the Government.

This one-sided bombardment during the life of a tariff act necessarily resulted in greatly breaking down its protective features.

Functions of Government Counsel

It must be borne in mind that the Government counsel in charge of its customs legislation has not now and never has had the right of protest. The functions of such Government counsel now and ever have been to *defend suits brought by importers.* It never was and is not now its duty or legal right to study the act and insist in court upon *higher* rates of duty being levied. They can and could only defend a rate or construction assailed by an importer. While the importers of legal and moral right studied the act, word for word, selected the provisions they deemed most favorable, protested and asserted their views before collectors and in the courts, neither Government counsel nor the American manufacturers had that right. That right, however, is by the current act granted, as well as the right to oppose importers' claims, and, without doubt, if vigilantly exercised by manufacturers, sustaining Congressional intent, will result to their tremendous advantage.

This act expressly accords the right to all manufacturers and producers to intervene and protest any rate levied or construction had by a collector or value assessed by an appraiser. For the first time in history, in this particular, American manufacturers and producers are put upon the same legal footing with importers and can intervene in upholding in its integrity the enacted law.

Hundreds of thousands of protests have been filed by importers against every tariff act of recent years. A great percentage of these have been sustained by the departments or courts. For several decades the court records show on final decision between forty and fifty per centum of importers' claims to have been sustained. It stands to reason that if this vast number of errors were made against importers a multitude were likewise made against the manufacturing interests, which, with the present right of intervention and protests, could have been asserted in the customs tribunal and courts and corrected by the interested manufacturers. And, without doubt, many contentions of importers could have been, with more diligent scrutiny of customs administration and the added opposition afforded by this act, defeated.

Should Be Utilized

It, therefore, vitally behooves every manufacturer, as an individual or by joining with those of like and similarly interested industries, to be vigilant of, assert and defend before the customs officials, tribunals, and courts the protection accorded them by the existing law.

Further relief is afforded manufacturers and producers by the elastic or flexible, the dumping and the countervailing provisions, sections 315, 316 and 317, of the current act.

In fact, assembled in these provisions are all the powers of Congress to secure this protection for the interests of American manufacturers through the remedies therein provided

By this act complete guaranty is given our manufacturers and producers of the intended and the just protection afforded by the act, and fair treatment by foreign trade competitors and by foreign governments.

American manufacturers and producers should awaken to these new and tremendous possibilities thus secured them, and avail themselves of these accorded rights. They should be swift to know how the act is being administered as to their competitors, what of foreign legislation and administration unjustly enures against them, and what in detail of the provisions of our laws will most conserve their interests and, when so known, appropriately enforce them. By a close study of the terms of all previous tariff acts importers have spelled success. At least, they have discovered, asserted and received their just rights under the law.

Manufacturers now for the first time have the same legal rights and should do likewise, insisting upon and enforcing before the appropriate tribunals the recorded purposes of Congress to protect and upbuild American industries and each and every one of them. For this tariff act is an American measure, calculated to foster American industries, feed American mouths and employ American labor; and should, therefore, be defended and upheld as to every American industry and class of industries to the fullest extent accorded by the act. That is the accorded right. The interest and the patriotic duty of every American producer demands it be exercised in their own and the behalf of the millions of American workmen employed by and dependent upon them.

* From the Washington Service Bulletin, published by the National Association of Manufacturers.

** Associate and Presiding Judge, United States Court of Customs Appeals, 1910-1922.

Some Aspects of Textile Advertising

By *Paul T. Cherington**

THE textile industries as a whole have been cool toward advertising. And yet, as a matter of fact, there have been some marked advertising successes in the textile field. In garments of all kinds, in knit goods, in a few fabrics of silk, cotton, wool and other fibres, the use of advertising long ago passed the experimental stage. In a single recent issue of one popular woman's magazine, there were over $239,000 worth of advertisements of fabrics and textile wearing apparel. In another magazine for the same month there were $63,000 worth. These were in one case not over one quarter and in the other not one tenth of the total advertising in the issue. While each of the figures represents an amount which cannot be called negligible, nevertheless it is perfectly evident that, compared with many other articles among what economists call "consumers' goods," textiles have not yet really laid hold of this marketing device.

Creates Good Will; Stabilizes It

Modern advertising, conducted by modern methods, results in what is virtually the establishment of a direct contact between the manufacturer and the final consumer. In due process this contact involves an obligation on the manufacturer to preserve all those qualities in his product and all those characteristics in his dealings which will leave unimpaired the friendliness the consumers have given him. In return, if the advertising and kindred operations are properly conducted, the public yields a degree of allegiance which gives to the term "good will" a value both large and tangible. It should be made plain that, as the term is used in this discussion, advertising does not merely embrace bragging about merchandise, but covers that combination of uses of actual economic and social forces which has shaped demand in many fields. It has lifted Kodaks, Keds, Cream of Wheat, Cutex and other articles out of the class of struggling products with limited sale, at the mercy of the whims of a capricious public, into the class of articles with fixed place in the purchasing plans of a wide market. This is the kind of advertising of which the textile industries have made only imperfect use.

Ignorance of Textile Trade Marks

The Directory of Textile Merchandise gives the names of about 17,000 trade-marks applied to textiles or products made from them; but out of this enormous number the ordinary consumer would find it difficult to name 17, while even "the trade" knows with certainty only very few out of the total. It would be a wise and widely-experienced commission man who could name 170 off-hand. Of course, to popularize anything like the whole number of textile trade marks would be impossible, but the total number of them contrasted with the relatively inadequate commercial use made of most of them indicates the field for textile advertising activity. These figures, to be sure, included both textiles and textile garments. To advertise knit goods, garments, or other products made of textiles, so as to affect and to make use of the consumer's attitude toward them is, of course, simpler than similarly to advertise fabrics which must go through a more complex process of distribution.

Obstacles Not Insurmountable

This complexity of the textile distributing mechanism often has been advanced as the reason for tardiness among textile interests in making use of advertising. The complexity really is an obstacle, but far more often it is merely used as a justification for not taking a new step. And, as a matter of fact, greater obstacles than this have been overcome in other lines of business. Fabrics have no more tortuous route from mill to consumer than that followed for example, by printing paper, in the advertising of which noteworthy successes have been achieved.

Again, with some justice, it has been said that the textile industries are conservative and that they, more than any others, shape their activities on the past rather than on the future. In view of their former record as leaders in the Industrial Revolution and of the development of highly organized methods of production, this impeachment seems not wholly merited. Nevertheless it is perfectly true that elements of conservatism do control the making and selling of textiles far more than is the case with products on which the maker's profit is wider per unit of consumer purchase than on textiles. In the long run, however, neither, the complexity of the distributing machinery nor the conservatism of the textile manufacturer will continue to interfere with the filling of the textile needs of the public by the most economical methods. Neither of these obstacles can permanently prevent the adequate use of advertising for textiles if that is an effective and economical device to be used in helping to get goods from the mill to the final consumer.

Consumer Impressions

The four indispensable elements in the sale of textiles are the mill, the goods, the consumer of the goods and the consumers' disposition to buy the goods; all the rest are ancillary factors. If there are consumers *who want goods* the goods they want will be made and sold: so that perhaps most important of all the factors in the situation is this least tangible one of the consumer's willingness to buy the products of the mill. This disposition to buy textiles is prompted partly by mere desire for decoration or coverage and partly by other less definite impulses such as are described by the term "impressions." One of the most difficult ideas for many people to grasp is the obvious fact that, both individually and in masses, all sane people constantly are receiving impressions of and forming opinions about many things well outside of their real knowledge. Skinner's satins, Cheney silks, Mallinson's silks, Fruit of the Loom, Indian Head, Duretta, and many other named textiles probably have never come actually into the hands of half of the people to whom the names are familiar. And yet most people who have heard these names have some impression about quality which is indelibly associated in their minds with these and other specific names.

Similarly, American Woolen Company, Arlington, Worumbo, Pacific, Amoskeag, Wamsutta and other names of mills are known to many consumers who do not know whether they ever bought any of their products or not. In some way they have got an impression about the company. It did this, or it did that; or pleased or displeased somebody at such and such a time, or its products have certain qualities of design, color, texture, finish or durability. The impression is there, for good or for ill; and it has been made either by the mill, or by some one else. In other words, notwithstanding the intricacy of the distribution machinery or the conservatism of the mill, a substantial part of the public is forming opinions of many mills and of their products based on what it learns either from authentic sources or from other sources not so trustworthy.

Types of Textile Advertising

Thus far, most textile fabric advertising in this country has taken one of three forms:

1. Widening the general reputation of the mill.
2. Familiarizing the public with a name for a whole line of textiles.
3. Advertising a named fabric.

This does not exhaust the possibilities but it makes it clear that even so far as textile advertising has gone it has not been confined to one type or one line of activity. In all three types, there have been both successes and failures; but wherever either these or any other rational methods of shaping the consumer's attitude toward a mill's product have been tried with skill and with proper regard for the facts of the case by the methods of real modern advertising, the results have been not at all different from those which advertising of this sort has achieved elsewhere.

Creating the Disposition to Buy

The process of advertising passed the stage of mere orders to consumers many years ago. The public seldom goes about doing anything merely because it is told to do it. Even a cursory examination of magazine pages shows how much more helpful and constructive most advertising copy is now. By suggestion, by in-

* J. Walter Thompson Co.; former Secretary National Association of Wool Manufacturers.

ference and the creation of suitable atmosphere, the disposition to buy is set up. It is far more subtle and more effective to create friends among distributors and consumers than to order consumers about. That is a point about advertising not given full weight by those who have felt that it was not suitable for use in the sale of textiles.

A second point which should be properly allowed for in thinking about advertising textiles is the fact that textiles and textile products are not precisely on the same footing as soap or coffee or other quick repeaters selling at a low price. Decisions to buy textile products usually are not hasty decisions to hazard a small coin on a new experience. Fabrics, garments, practically the whole textile group of articles are part of living equipment. Blankets may safely be considered as a ten-year investment; underwear usually lasts three years, clothes from one to two years, and even towels and handkerchiefs are well above the usual run of food or drug specialties in the amount of deliberate judgment that goes into their purchase. Hence, in addition to not being susceptible to mere orders concerning textile purchases, the public requires a larger use of solid reasons in shaping their views concerning this kind of merchandise. This does not mean that textile products cannot be advertised, but it does mean that they require a different sort of treatment from that on which many of the specialty successes have been built.

Minimizes Style Risk

Another point of importance about textile advertising deserving careful attention by textile manufacturers is the great practical value of any stabilization of trade which can be set up to offset in a measure the risks and costs of the style factor. In most goods having a substantial style element the manufacturing season is made up of two costly parts; first, a long wait to see what the public is going to want, and second a feverish effort to make a full season's output in that inadequate portion of the necessary time left after the character and direction of demand becomes clear. If this instability could be modified so that the uncertainties of demand were reduced, even in a small measure, one of the most trying and costly features of the textile business would be bettered.

Finally, in the introduction of new textiles there would be enormous value in a large body of consumers training by the mill's own efforts and in its chosen way to have a friendly feeling for and confidence in a textile concern or the trade names under which it does business.

More secure trade, more even and regular trade, in other words a trade easier to hold and more economical to conduct, would result from a wider use in the textile industry of modern advertising by modern methods. This is not a mere forecast or prophecy. The result has been achieved but not as frequently as it has been in other types of goods, nor as often as it will be in the near future.

No Universal Formula Available

To avoid any possible misunderstanding, a word or two should be said about methods. Nobody has a universally applicable formula for textile advertising, nor can the best results be accomplished by any rigidly standardized methods. The task is essentially one of shaping the attitude of the consuming public with due regard for the problems of distribution. Fundamentally, it is an effort to mould and direct the consumer's disposition to buy. The difficulties of textile distribution are hurdles—not impassable barriers. Most of the worst difficulties of textile manufacture have their roots in the vagaries of demand. Modern advertising has enormously stabilized demand in many lines of business. With proper adaptations it has been used with good results in many textile lines. In this field its practical usefulness is just beginning to be realized.

The "Movies" Teach Textile Skill

The Fairhaven Mills Blazes a New Trail in the Training of Operatives

By *A. A. Talmage*

THE educational value of motion pictures has long been recognized as a general proposition, and they have been used from time to time in movements aimed at the enlightment of the general public, along various lines. The Fairhaven Mills of New Bedford, however, is the first of the great cotton manufacturing corporations of the United States to utilize this method of teaching its operatives the correct way to work, and the reasons why incorrect methods should not be used.

Roving Broken with Long, Tapered Ends for Splicing.

Correct Method of Breaking Roving for Splice.

The value of the motion picture film in this respect can be readily understood when it is appreciated that cotton manufacturing is largely a machine process. The operative's duty is to tend the machine and to keep it in proper operation as steadily as possible. Because of the character of the work much of the help is taken from the ranks of unskilled labor. Many of the workers cannot speak English fluently, some not at all, and still more cannot read or write in English. In pursuing their daily tasks at their machines they have no chance to learn the other processes in other departments of the mill, and hence have but little knowledge of the exact relation the work of their particular machine bears to the rest of the manufacturing operations.

Impersonal Method of Teaching

Pictures being readily understood convey instructions by the eye, irrespective of whether or not the observer can read or write. James Thomson, treasurer of the Fairhaven Mills, and his co-executives, conceived the idea that properly prepared motion picture films offered a new and exceptionally good way of teaching the workers how to properly tend their machines. Not only could ideas be conveyed to them by this means regardless of their knowledge of English, or their ability to read and write, but opportunity was afforded to correct faulty methods in this way without encountering the resentment or confusion sometimes arising in cases where personal efforts are used to show the individual how to correct faulty methods of work. The operative, in other words, learns the right and easier way without having any criticism directed at him personally, and learns why any given method is bad and why some other method is good.

Method of Showing Films

The Fairhaven Mills has been experimenting with motion pictures for months, and has had special films prepared, the pictures having been taken in its own plant. The results have been so promising that the company has now discarded its small preliminary projecting apparatus and employs a new, up-to-date, motion picture machine similar to those used in the large theatres. A community house has been fitted up in the yard of the Fairhaven plant, in connection with the recreation center used by its employees. This has been equipped with a fireproof projecting chamber, fire doors, and other legal requirements, and is sufficient to accommodate about 150 at one sitting. The seats are removable and the place is used regularly by the help for impromptu dances, meetings, etc., it being the general congregating place at noon-time for lunch and rest. Here the pictures are shown, a different group being selected each day to see them. The sittings are held just before the noon hour on company's time so that the workers lose no pay because of the time thus spent.

Right and Wrong Methods

The first aim of the pictures is to explain the reason why work performed properly is to the mutual advantage of both the worker and the mill. Reading matter interspersing the pictures tells in words of one syllable how one employee's bad work makes it impossible for the workers in the next department to get proper results, and explains how poor quality and excessive waste have their effect on the operating cost of the mill and how a better quality insures steady work.

The pictures show the proper way to splice a lap in the carding department and also the improper way. They also show what happens in the next process if a lap is not spliced properly; likewise they show the proper and improper way to splice sliver on the cards, combers, slubbers, drawing frames and ribbon lap machines. Improperly spliced sliver is marked in the pictures and other pictures show what happens to it in the next process. The same idea is carried out in the spinning department, and the worker after seeing the film has a much clearer conception of the reason for the various processes, their proper sequence, and the relation which the work of his own machine bears to the rest of the manufacturing operation.

Utilized for Americanization Work

Opportunity is taken at intervals during the showing of the films to impress upon the workers the importance of knowing the English language, and they are urged to take advantage of the facilities offered them to learn to read and write English in order that they may increase their earning power. This missionary work is further followed up by a comprehensive system of Americanization work, including regular classes in elementary English, which are held in the community house on the mill

(*Continued on page* 341)

English Textile Associations and Societies

Executives' Organizations Have More Definite Responsibilities and Powers Than Similar American Associations—England Particularly Rich in Technical and Educational Societies—The Textile Institute Assuming a Leading Position

By *Frank Nasmith**

THERE is a very sharp dividing line between what may be termed broadly the commercial textile associations and the educational or mutual-help textile societies of Great Britain. For many years textile politics and economics, coupled with the growing strength of the operatives' unions, have necessitated a counter body or bodies to represent the employers. There are two that concern themselves solely with the spinning and weaving branches of the trade, the first being the Federation of Master Cotton Spinners' Associations, Ltd., and the second the Cotton Spinners' and Manufacturers' Association. These associations are the representative heads of a number of purely local associations, although the latter, in the case of the Oldham association and that at Bolton, represent a very large number of spindles. For example, the number of spindles represented by the Oldham association is no less than 20,000,000. The total number of spindles that the federation represents is 56,000,000.

Each local or district association is entitled to elect a definite number of representatives, governed by the number of spindles controlled by the particular district, to the central committee of the federation, which may be looked upon as the Upper House of the Spinning Houses of Parliament. The Cotton Spinners' and Manufacturers' Association, representing some 700,000 looms, is constituted somewhat similarly to its sister body. These two generally work in concert when any question of wage increase or reduction is to the fore, and rarely do they fail to arrive at an agreement with the representatives of the operatives' unions.

Similar in character is the Allied Trades' Association, embodying representatives of the bleaching, dyeing, printing and finishing trades, which in turn have their separate organizations, such as the Federation of Calico Printers, the Bleachers' Association, etc.

There are, of course, similar organizations in the other trades, such as the Silk Association for the silk trade.

Differ Radically from American

As stated previously, these associations concern themselves with trade questions and largely those which relate to hours of labor, wages, mill conditions, rating, home office requirements, such as fencing of machinery, humidification and ventilation, and other similar matters. They function quite differently, it may be said, from the National Association of Cotton Manufacturers of the United States or the American Cotton Manufacturers' Association. The decision of the Central Committee—although ballot is often resorted to in regard to certain questions—is law to the members. By this means a very strong front is presented to any action by the operatives, and, further, the production of the trade—particularly the cotton trade—can be regulated as deemed advisable.

Our English cousins in the textile industry take their organized activities rather more seriously than is customary with us. There are a few exceptions on both sides of the Atlantic, but the exceptions in our case are when we subordinate social activities, while in England they arise only when social affairs become dominant.

This difference is neither social nor temperamental. In the case of executive organizations at least it is largely due to the character of their activities and to their powers. Wage and other labor problems were chiefly responsible for the organization of the English bodies and their votes are binding upon the mills represented in their membership. The concentrated character of the British industry rendered such development natural and logical. Their national issues are local in the sense that all interests are affected similarly. The widely scattered character of the domestic textile industry renders such concerted action difficult.

But this does not account for our failure to develop technical and educational, or mutual-help, societies that compare with those of our English cousins, and it is with the view of emphasizing this need of the domestic textile industry that we asked Mr. Nasmith, who, through membership in and personal touch with the English bodies, is well qualified to explain their activities, to prepare the accompanying article.

Between this class of association and the purely educational bodies lies the International Federation of Master Cotton Spinners' Associations. It may be remembered that it was the banding together of the various spinning associations throughout Europe, bringing into effect short time, and the consequent smashing of the Sully Corner, that resulted in the inception of this federation. At their periodical conferences matters of economic and practical interest are made the subject of papers and thus educational work is accomplished. The bi-annual cotton statistics prepared by the secretary, Arno Pearse, are acknowledged to be of considerable value to the trade, and their authenticity and accuracy is guaranteed, owing to the fact that the responsible spinners' and weavers' association in each county is a member of the federation. To date the United States manufacturers have not seen fit to join the federation, which is regrettable.

Among Technical Societies

It is, however, by the large number of textile societies, whose sole aim and object is technical education and information, that a great and lasting work for the textile industries of Lancashire and Yorkshire has been accomplished.

Although at present neither in importance nor strength of membership first, the society which in my opinion will eventually become pre-eminent is the Textile Institute. Application is being made for a royal charter and eventually it will be possible for the institute to elect Fellows, Members and Associates. This institute has accomplished some useful work since its inception in 1910. Its objects are to forward the interests of the industry it represents and the means adopted are of a purely educational character. Some ten years ago a conference between manufacturers and bleachers was arranged, at which a paper dealing with the deleterious effects produced by the employment of metallic salts in sizing was read. The discussion following was informative and useful. As a result it was openly stated by a representative of the Bleachers' Association that thousands of pounds sterling per year had been saved, due solely to the fact that the reduced use of metallic salts in size had reduced the number of tendered and damaged pieces during the bleaching processes.

Another useful piece of work financed by the institute was in respect to indigo-dyed goods and it resulted in the establishment of a standard for pure indigo dyeing which is recognized today.

The institute is international in character and numbers members in many countries throughout the world, including the United States, China, Japan and India.

Activities of the Textile Institute

The operations are briefly as follows: In Manchester are located the headquarters, comprising a suite of offices, members' room and meeting room. A number of sections are in existence, including Lancashire, Yorkshire, South of Scotland, Ireland and the London section, just inaugurated. Anyone connected with the industry can become a member, although when the charter is granted the grading of membership will make distinction between the highly qualified technical man and the one who merely handles the goods as a merchant. Papers are read before the various sections and two conferences are held yearly, the spring conference in Manchester and the autumn conference in some selected textile center. In 1923 the venue is Leicester. A foundation fund has been subscribed and it is hoped to raise this to £50,000. The late Sir William Mather gave £1,000 to this fund and in memory of him the Mather Lecture is given once a year. In 1922, at Blackburn, Mr. Cross, the leading expert on cellulose, gave the Mather Lecture, a paper dealing with the future possibilities of production of artificial filaments for the textile industry, undoubtedly a matter of extreme interest at the moment. Then there is the Crompton Design Prize Fund, which has done more to improve design in woven fabrics in Lancashire than any other scheme. The collection of volumes of fabrics which is growing yearly will be of immense value in the future. All the latest and most interesting fabrics are obtained and sample books of large size made up. These are distributed to the technical schools for the use of students.

The membership of this institute is at present one thousand, but with the granting of the charter and the progress which the London Section, it is felt, will make, this number will be materially increased before the end of 1924. The dues are low, being only £2.2.0 per annum, and this entitles the member to a copy of the monthly journal. When it is added that the various research associations subsidize this journal and that their investigations are published in it, its value will be appreciated and also the low rate of the subscription.

Mill Managers' Associations

In Bradford there is a very live textile society of 1,300 members, mostly composed of managers—who correspond to agents in American mills—under-managers and other technical officials of the mill. Similar societies are in existence in other districts, notably Halifax and Huddersfield. Syllabuses of useful papers

* Member Council Textile Institute, Member Council British Association of Textile Works Managers, Secretary World Cotton Conference.

are arranged for each winter session and in some cases the papers and discussions are subsequently published in booklet form.

A more intimate description of the Lancashire mill managers' associations may be of interest. Looking at the rules of the British Association of Managers of Textile Works it will be found that the objects are:

(a) To provide an organization for managers of works in connection with the textile industry, including spinners, weavers, bleachers, dyers and calico printers, for the purpose of doing all such things (either in the United Kingdom or elsewhere) as may from time to time be deemed necessary, to elevate the status of its members, to advance their interests, and to deal with any matters which will be of benefit to the textile industry.

(b) To establish district or branch associations and sub-committees representative of the several branches of textile industry, and to provide opportunities for intercourse among the members, to give facilities for the reading of papers and delivery of lectures; to disseminate information concerning methods of work, and to promote improved methods of management and organization.

(c) To hold annual or other conferences.

(d) To collect information of interest to the textile industry, etc., and, if deemed necessary, to distribute it for the use of members.

Character of Membership

A manager, it should be understood, corresponds to the agent of American mills and is really the technical executive head of the production end of the business. Managers as a class in Lancashire have a very intimate knowledge and, although not so highly paid as many agents in America, are highly competent and as a class are largely responsible for Lancashire's pre-eminent position in the textile industries of the world.

The membership of this association consists of textile works managers and a candidate for election must have acted in the responsible capacity of a manager for some time. The Executive Council may elect—in their discretion—others to become members, but in the British association only three are not managers. They are W. Myers, M. Sc., the head of the Weaving Department at the Manchester College of Technology; J. Winterbottom, M. Sc., the head of the Spinning Department at the same college, and the writer.

The British association originally had a Yorkshire section, but this is now largely merged with the Bradford society. It should be appreciated that the British association carries as members managers from districts not served by a local society.

Addresses and Discussions

A number of meetings are held during the winter session in Manchester, at which papers of a thoroughly practical, technical and educational character are read by experts. Take for example the following to be delivered during the present session: "The Evolution of the Knitted Fabric," by Professor W. Davis, the newly elected professor of hosiery manufacture at Nottingham University; "Improvement in Opening and Cleaning of Raw Material," by C. J. Charnock, the inventor of new appliances in connection with this process; "Modern Yarn Winding and Combined Twisting and Winding," by T. W. Holt, the inventor of the Climax twister and winder; "A Colorist's View of the Fast Color Trade," by C. Schwabe Parker, one of the coming men in the dyeing trade of Lancashire. The question of raw cotton supply is very acute at present in Lancashire and the writer is down to give a paper on the question this month to the association.

In addition to papers, open conferences take place at which a subject of importance to the industry is introduced. The discussions which follow the papers and which occur at open conferences are thoroughly practical. Here you have assembled a body of men whose work it is to produce the best quality material at the lowest cost. Further, they are buffers between the directors and the operatives. Every knotty point is keenly discussed and undoubtedly much practical benefit is derived. The meetings take place on Tuesday and Saturday and the attendances are excellent. The enthusiasm of members will be appreciated when it is stated that practically every one who attends the Saturday meeting must make a special journey to the city to do so, some of them travelling more than twenty miles. Up to 1921-1922 the papers and discussions were recorded in the association's own journal, published annually, but now they are merged in the journal of the National Federation.

Federation of Works Managers

In Oldham, Preston, Burnley, Blackburn and Ashton-under-Lyne there are similar associations, each doing work of the same class. The dues are low, not exceeding 25 shillings per annum, which includes a copy of the journal. These various managers' associations were federated in 1918 under the title the National Federation of Textile Works Managers Associations. The first meeting was addressed by the late Sir A. Herbert Dixon, Bart., on the question of "Increase of Production," a subject of vital importance to the mill manager. The main objects of the Federation are to constitute an authority representative of the Textile Works Managers Association; to establish an official center for all such associations, and to take collective action in all matters affecting general policy and the welfare of the textile industry (either from a national or an internal standpoint).

The Federation, now comprising over 1,000 members, does not meet very frequently, leaving the work to its affiliated associations. But it is taking a part in matters of importance to the industry, and on the local education boards, on the advisory boards of the City and Guilds of London Institute, on the Empire Cotton Growing Association and other bodies will be found its representatives. Matters of interest to the industry which have come within the purview of the Federation include the following: Home office instruction re proposed legislation as to compulsory abolition of shuttle kissing; managerial claims for representation on education boards throughout the country; proposed commission to the Far East to consider overseas trade; question of abolition of half-time employment in the cotton mills and the eight-hour day. Altogether this Federation is alive and is making its presence felt.

The Mutual Cotton Classes

The subject cannot be left without reference to another form of association known throughout Lancashire as Mutual Cotton Classes. The members consist of young operatives with a sprinkling of foremen or under-superintendents. The object is advancement in technical education, and papers are read, discussions take place and in some instances, particularly at Oldham, machinery is available for experiment and investigation. When the writer lectured at Oldham to the Mutual Cotton Class he never had a better or more appreciative audience, nor one that discussed the questions raised more keenly. These classes are productive of excellent results and the way the young men give up their evenings to study of this kind augurs well for the character of the future managing personnel of the Lancashire mills.

It should be said in conclusion that there is no difficulty in getting lecturers of standing, and should one fail to appear through untoward circumstances, some practical subject will be raised by a member with every likelihood that a thoroughly useful discussion will take place.

Business Revival to Continue

By *Albert N. Hogg**

BUSINESS in the United States in 1922 has revived despite the continued presence of a psychological hoodoo. If it is true, as history says, that we can judge the future only by the past, then the revival of 1922 will be continued and accelerated in 1923.

There is nothing the matter with the banking situation. The supply of funds is sufficiently large to finance any business in prospect at the present time, so we can pass that as a favorable factor in the situation.

The merchandise debacle in 1920 and 1921 was prevented from becoming a catastrophe because of the elasticity of our Federal Reserve System, which held up the business situation and helped business to get back on its feet; so, up to this point, there has been considerable liquidation of frozen loans and the great losses sustained have, to a certain extent, been offset by profits on new business, so, facing 1923, the business world generally is better equipped to operate.

Profits Not Impressive

Profits, as reflected by statements covering last year's operations, will not make an impressive showing. There has been a good volume of business done, but material, wages, transportation and general overhead have been so high that it has been a difficult matter, in many lines, to produce goods at a price which the public will pay and at the same time net the manufacturer a reasonable profit. The manufacturer and merchant, therefore, are facing, alike, a necessity for higher prices in 1923, and this tendency to higher prices has made some progress. Whether or not we have a period of secondary inflation, is a matter of guess work, but there is working, underneath the surface, a force that will eventually stabilize conditions to the point where normality will have been attained. In a domestic sense, therefore, while we will have more or less maladjustment for some time, conditions, nevertheless, are very much improved and business can plan with far more satisfaction than it could a year ago. Such elements as shortage of labor and the union scale of wages and the higher prices for cotton, etc., are factors that will gradually adjust themselves through a greater force than any or all of these, and that is the factor of a greater production of goods in all lines.

International Conditions

There is a cloud on the horizon that throws its shadow over this country and that is the financial conditions abroad. There is, however, a greater force than this which eventually will bring all of these different unsettling factors into line, and that is the factor of production. With all the financial unsettlement of things abroad, no matter how they would adjust the debts and their currency troubles, they would never get very far without the increase in production, for, after all, the currency or the money itself is not wealth, and it is only in the production of wealth that the solution of the international financial problems will be reached. So, therefore, the farther we get from the war period and the dangerous psychology produced by the war, the closer we will be to normal conditions and a basis on which business can go ahead making its plans, improving its methods and operating where the survival of the fittest will rule as it has always ruled in the achievement of material success.

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Impressions of Orient from a Textile Standpoint

Developments in China and Japan During the Last Quarter Century as Seen by a Textile Merchant in a Recent Trip Through These Countries Comparing Them with Ideas Gained in a Similar Journey Nearly Twenty-five Years Ago

By *Charles J. Webb*, Philadelphia

IN ATTEMPTING to relate the impressions gained during a trip to the Orient and the part to be played by those important countries in the future development of the world's business, one cannot refrain from a brief comment upon the impressions received during a recent trip to England. That country has always been such an important factor in the Far East that conditions there are naturally of interest.

At the outset, I find it impossible to subscribe to the very pessimistic and gloomy talk heard on all sides regarding conditions in England. During my visit to that country in the summer of 1922, I could not but be impressed by the signs of business recovery in all sections. I was finally led to believe that comments to the effect that trade was in bad shape were nothing more than a reflex from the experiences of previous years. Business men had been accustomed to this thought for such a length of time that they said these things without really meaning them. Business as I found it, was not so bad. Prices for raw materials and goods were advancing and the large accumulated stocks of various products were rapidly disappearing. Since my return to this country foreign exchange has gone up and the markets have advanced materially. There is also very much less unemployment and a more encouraging outlook for business generally. It is gratifying to remember that I thought all these things were going to happen and that the pessimistic talk which I heard was the result of habit and not the condition which existed.

After returning from Europe I traveled through our great western country. This is always an inspiration so that I can summarize my ideas in the words of that eminent financier, the late J. Pierpont Morgan, that if "anyone is anything except a bull on America, they are on the wrong side."

En Route to the Orient

In leaving for the Orient we sailed from Vancouver, British Columbia. There we found it common report that the business done in the bootlegging traffic between Canada and the United States was of such volume that it would soon bring Canadian exchange on a par with America. This has recently become a fact; it would give the impression that the amount of liquor being brought across the line is so great that it is being done with a pipe line. One cannot help but feel that if the Volstead Law allows our competitors in foreign countries to stabilize exchange because of its effects, we can at least say it is a pretty bad business.

In traveling to the Orient these days, one cannot but be greatly impressed by the high character of steamship accommodations. They are par excellence. The "Empress of Canada," on which we sailed, is certainly the last word in modern shipbuilding.

On our arrival in Japan it was a matter of great surprise to note the tremendous amount of modern building construction going on in the port towns. In Tokio, one office building just being completed had been erected by an American engineering firm, Fuller & Co. This covered an entire block and was said to have cost between five and eight million dollars. It was gratifying to learn that most of the large buildings in the course of construction were under the supervision and direction of American architects and engineers.

We found the people of Japan very courteous and anxious to please. While this has usually been their custom, I found it even more pronounced than was the case when I visited Japan twenty-three years ago. There was no visible evidence of depression in business, although there was almost the same pessimistic talk noted in Europe. However, after studying conditions more closely it seemed to me the volume of business was very large and conditions as a whole were generally prosperous. The new enterprise which has been developed during the last ten years, namely, worsted spinning for the manufacture of worsted goods, has been developing to such an extent that I was informed there were 200,000 worsted spindles now in operation in Japan.

The impressions of Charles J. Webb, the prominent textile merchant of Philadelphia, as the result of a recent trip to the Orient are particularly interesting not only because of Mr. Webb's wide acquaintance in the textile industry and his picturesque manner of description, but also because these views give a comparison between existing conditions and those that were noted on a similar trip nearly twenty-five years ago.

Mr. Webb holds a prominent position in the textile life of Philadelphia. He is president of Charles J. Webb & Co. and chairman of the board of Chas. J. Webb Sons Co., Inc., large wool and cotton dealers of Philadelphia; treasurer of the Kent Mfg. Co., Clifton Heights, Pa.; president of the Merion Worsted Mills, Conshohocken, Pa.; president of the Philadelphia Textile Manufacturers' Association, president of the Philadelphia Wool & Textile Association, vice-president of the Manufacturers Club of Philadelphia and vice-president of the Union League of Philadelphia.

Worsted Industry Developments

The wools used in these mills are bought in Australia, England and the Cape in competition with the rest of the world. They are chiefly fine in grade, 64s to 70s. Inasmuch as there is no tariff on wool, the country is on the same basis practically as England, with the exception of the enormous advantage of cheaper labor. A determined effort has been made in Japan to create a demand for worsted goods and that this has been extremely successful is evidenced by the material of the clothing worn by the Japanese on the streets. The mills are largely engaged in the manufacture of thin challies and other worsted goods, while only a few woolen mills are engaged in the production of cheap woolen fabrics for army use. The development of the worsted industry in Japan is successful to a marked degree. The growing popularity of their own worsted goods made chiefly for their own consumption is naturally food for thought. With fifty to sixty million people to be clothed the future of this industry with a fertile, virgin field to cultivate, has boundless possibilities.

Impressions of Korea

We passed through Korea on our way to Manchuria, and could not but be impressed with the wonderful railroads which have been constructed in that country. These have been built by American engineers and were all broad gauge. Another fact that was especially noticeable was that since the Japanese have gained control over the affairs of this country, they have planted large numbers of rapidly growing trees everywhere, which have greatly improved the natural beauty of the landscape and have given the entire country a most prosperous and pleasing appearance.

Agriculture in Manchuria

While traveling through Manchuria the tremendous area of tilled land is striking. Kansas and Iowa have nothing on Manchuria when it comes to agricultural development. Every inch of the ground appeared to have been tilled. We rode for mile after mile without seeing a single house, which naturally appeared remarkable. We found upon inquiry that the Chinese are accustomed to live in some central village, where they can enjoy the protection of a defensive wall against possible aggressors, and go back and forth from their respective farming properties day by day.

Other China Cities

On arriving in Tientsin, having visited that city twenty-three years ago, I hardly recognized it as the same city. New building after new building met the eye, with cotton mill after cotton mill, showing a wonderful development. In fact, it revealed a marvelous advancement, worthy of many European cities. Thence we went on to Peking, the greatest sightseeing, mysterious city of the world. Here again I was able to note one improvement after the other. The greatest of all seemed to me to be the number of buildings of American architecture, while the streets are all well paved. When I visited this city previously, there was nothing but mud—and very filthy mud at that.

It was our intention to go from Peking to Hangkow, but we were not permitted to do this on account of the bandits. They said that we would be kidnapped, so rather than face this prospect, we went direct to Shanghai. Once more we found the development of this city as the principal port of entry in China little short of astounding. It was stated that the advance in property in Shanghai, for example, has been four to five hundred per cent. since the occasion of my last visit. Shanghai does not present the appearance of a Chinese city. You would think that you were in America or in Europe were it not for the rickshaws and a few other typical Chinese idiosyncrasies.

Business Conditions Satisfactory

Business conditions in China we found were apparently similar to those elsewhere. They talked somewhat depressed, but when we studied the matter a little it appeared that the amount of business they were doing was fully up to what it should be in good times. The cotton mills in Shanghai are increasing every year and at the present rate of expansion and development, in my judgment, the next five years will see an increase of at least fully 600,000 spindles. China eventually will make all its own cotton goods.

A 50,000-spindle cotton mill is nothing unusual, and in Tientsin a mill of 100,000 spindles was being erected

The Chinese mills are usually engaged in the production of coarse counts of yarn, while in Japanese mills there has been a gradual increase up to 40s. Quite a large amount of foreign capital is invested in these mills. Mill executives are in nearly all cases foreigners, either English or Americans, with a preponderance of the former nationality. The help in the Chinese cotton mills is usually controlled by a compradore, who contracts to furnish all the labor, paying their wages and agreeing to deliver cloth or yarns as may be determined. The compradore in these mills acts generally as the financial agent and go-between of the owners with their employes and also with their customers.

Competition for Native Trade

Twenty-three years ago I stated, regarding the cotton mill situation in Shanghai, that the wages paid were 5 cents gold per day, but that the labor furnished was as poor as it was poorly paid, and declared that my friends in the South need not fear the competition from operations in China. However, I am now convinced, that having had twenty-three years to educate and train their help, such is not the case. At the earlier date the women were all small, with broken or crippled feet, which, as we know, was the sign of aristocracy. Now that has all been stopped and they all stand on their own feet, as it were. They have been taught to be more thrifty and today it is my opinion that Chinese competition in low cotton goods for their own consumption is to be feared.

There would seem to be little chance for any serious competition in outside markets. Their own enormous population, with its tremendous consumption, will for many years easily absorb their own production in these fabrics, so that there will be little surplus production available for exportation. It means, however, that there will be a gradually decreasing market in China for American and English cotton goods for consumption in the face of this growing competition, with a labor cost not over 20 per cent. of American cotton mill wages.

There is, however, quite a development in China in other textile mill operations, notably hosiery of both silk and cotton, although the former predominates at present. These other lines, including some specialties, will, no doubt, prove competitive to a certain extent. When the time comes when they have educated all the Japanese and Chinese to wear stockings, what a market they will have for this product!

The reason why the 400,000,000 people in China do not appear as prominent importers of merchandise for clothing, etc., is due to the fact that the Chinese in the interior—and China is mostly all interior, as the roads are very few and then only in the surrounding port towns—are engaged in tilling their own little pieces of ground, raising their own food and growing more or less of their own cotton, which they spin and weave on their own looms by hand. That leaves the clothing purchases practically nil. Every family is self-supporting, more or less, and about all they ever buy is a little quantity of oil. That is what makes possible the extension of the Standard Oil Co. in China.

Population Easily Satisfied

One fact was deeply impressed upon me on my trip through both Japan and China, and that is the fact that the people generally appear well satisfied. If they have enough to eat day to day, they have no reason to complain. There is no sign of bolshevism, which is necessarily a big asset with a contented people without any restless disturbing elements to prevent their peaceful development and progress. With the continuation of such conditions, the commercial future of these countries appears to be most promising. As I stated earlier, there is little to fear in the way of competition from China on low cotton goods in any other markets than her own. As for Japan, that country is always to be feared as a competitor with her advantages of lower priced labor, etc. In textiles, such as worsted fabrics, there seems to be little prospect of severe competition, except in lightweight goods.

The ability of these people as imitators is too well known to require further comment. China has always been America's friend, but we are in danger of losing much of our prestige there for the simple reason that we do not study the country sufficiently to comprehend the needs of the situation, and follow up our advantages in export business in the same manner as other nations do. We usually fail to pay much attention to these markets and their advantages until trade at home becomes dull, but when business at home develops, we forget it again and fail to cultivate the advantages gained. Some time in the future, with our great expansion and increased production in this country, the American manufacturer will wake up and recognize the value of foreign trade as a great stabilizer of production.

I am not gloomy over the outlook of the foreign situation as many people are today. I feel there is enough gold in the world, enough securities and enough constructive brains to exchange gold for securities and thus stabilize the currencies of the world as heretofore, provided we can only find the Moses to lead the way. In my humble opinion, all this will take place much more quickly than the average man anticipates. I look forward with courage and optimism to the year 1923, and the only fear I have is with regard to our own country, in our present and future legislators at Washington.

Charles J. Webb

Spinners Hopeful of Future

New Year Finds Their Output Well Contracted For

By *Robert Chapman**

The sales yarn mills of the South greet the coming of the new year with satisfaction, as compared with 1922, which proved to most mills an unprofitable period, except for the last three months of the year. The first nine months might be said to have been a buyer's market. Spinners, in order to keep plants in operation, sold yarns at cost and in many instances below.

The new year finds spinners with their output well contracted for, as a general average well into May. Some mills are sold up tightly until September. The prices obtained, and now prevailing, though they may be apparently high to some interests, afford no more than a normal profit. We know of no line of manufactured goods today which could be produced at anywhere like pre-war levels. This holds peculiarly true in the cotton spinning industry. Another feature of much encouragement is that as far as we are able to ascertain, the warehouses of our customers, both for soft and hard yarns, are bare of stocks. Yarns going out are going into process, and not into warehouses. This situation is equally encouraging to both buyer and seller.

No Inflation in Yarns

There is no inflation in the cotton yarn trade. There is not a line of spinning today that has the least suspicion of such. Prices quoted represent solid intrinsic worth, and as the business of the buyers of our yarns is good, we look with a genuine degree of confidence to many months of successful business.

The poor we have always with us, and so with the textile interests, we always have prevailing "a situation" in cotton. There is always some overpowering influence, which makes for a rising or falling market, causing disturbance and uncertainty. And thus while the yarn market is in a comfortable position at the present, for summer months there is a degree of uncertainty, contingent upon like uncertainties in the cotton market. We expect a larger acreage of cotton this year than last. This season, as we know, the South raised about 20 per cent. more cotton than last year, and with favorable weather conditions, in spite of the weevil, we may see two or three million bales more produced than this season. On the other hand, with bad weather prevailing in conjunction with the weevil pest, the American crop may again drop to the abnormally low figure of last year.

The seller and the buyer of American cotton, under conditions mentioned, can forsee the possibilities of a spread of five million bales, between maximum or minimum crops, but we are not crossing bridges before we come to them, and on the whole we feel optimistic for the year.

* President, Southern Consolidated Yarn Spinners' Association.

The Transportation Factor in Textile Costs

Some Reasons Why the Cost and Periods of Transportation Are Likely to Become of More Importance in Determining Textile and Other Industrial Locations in This Country Than Has Been the Case Heretofore —Example of New England's Shoe Industry

By *D. L. Taylor**

TO what extent should transportation be considered as a determining factor in the location of a textile mill?

Before we discuss the pros and cons of this question, let us see where past events surrounding transportation problems have brought us and what are the possible or probable obstacles to be encountered later.

Previous to the year 1914, it was the general practice of railroad managements to encourage industry along their lines, through perfection of service and schedules of rates which would, regardless of distance, permit competition of manufacturers with other sections of the country. This aid from the railroads had waned somewhat as time went on, but was still apparent in some districts even as late as that year.

The burden upon the carriers' facilities due to war orders, seemed to require a central railroad administration under Federal operation and resulted in unprecedented advances in pay for railroad workers. Wage advances reflected rate advances and even after the railroads were returned for operation by their corporate companies, the revenue was found incompetent to pay wages arranged during the period of Federal Administration and a further rate advance was authorized and applied.

Both of these advances were percentage advances, which although seemingly just, threw out of alignment the cents relationship between competitive sections which had been maintained for many years. This, together with the high level of rates, caused much disturbance to industries whose movement of raw material or product depended on transportation costs and caused conferences of shippers and railroad officials and hearings before the Interstate Commerce Commission for relief, during which time shippers used other forms of transportation to keep their business moving and such action naturally reduced the railroads' revenues.

Disturbing Rate Changes

With the users of transportation on the one hand provided with rate schedules too high to move business to the usual markets, and the railroads on the other hand with insufficient revenue to pay their fixed charges, the Interstate Commerce Commission through investigations have, since the termination of Federal control, been endeavoring to adjust all rates to permit a fluent movement of commerce and still satisfy the railroads' revenue requirements.

Many of the readjustments in freight rates in the past few years have disturbed the competitive complexion of the country. The positive application of the so-called Fourth Section, which provides that the rate to the intermediate point shall not be higher than to the more distant point, is but a step toward an actual mileage scale of rates, most burdensome to sections farthest from raw materials and markets. Also, the discontinuance of consideration of rail rates to water competitive points (i. e., points located on the seaboard, rivers and lakes), on basis of water competition, as prevailed in the past, has further indicated the purpose to establish distance rate schedules for rail hauls.

The desire of the Middle West to secure a rate basis to and from the South equal to the eastern basis, is liable, if secured, to change not only the level to the south from the east, but to also change many of the schedules now prevailing in the South and in the Middle West.

Shippers and railroads all over the country are discontented with the present freight rate structures, some of both the carriers and shippers endeavoring to eradicate improper and erroneous variations and others to secure advantage.

Present Sites Obsolete?

Recent adjustments in freight rates and the attitude of the Interstate Commerce Commission in their decisions, seem to indicate that the future structure of freight rate schedules will be on a basis of distance mileage, either country-wide or on some determined zone system. The strict application of either of these radical changes will disturb all industrial locations, particularly those styles whose transportation costs on either raw materials, fuels or finished products are important elements of the money value of those supplies or products. It seems also evident that there is a tendency toward extending the spread between rates on manufacturing materials and finished products, largely through advancing rates on manufactured goods rather than through reduction in rates on materials and fuels. In a country-wide application of these changes in basing transportation costs on what might be considered, or is said to be, a scientific freight rate basis, many present industrial plants now serving the entire country will find it difficult to compete successfully with manufacturers located in the centre of the market zones, until such time as the trade is adjusted to the new condition, which may be many years hence.

Away back in the eighties an enterprising manufacturer of Binghamton, New York, based a wonderfully successful merchandising campaign upon the slogan "Jones, he pays the freight."

It is not impossible that what was used at that time for a relatively bulky commodity like scales may prove equally adaptable for textiles in the near future if freight rates are to be based upon mileage, and if the spread between rates on raw materials and manufactured goods is to be increased. Mr. Taylor, the author of the accompanying article, has no doubt that the tendency is in this direction and makes it very plain that careful study of transportation rates and periods as a factor in determining the location of a textile mill is highly desirable.

Freight rates and periods have been generally regarded as a comparatively unimportant factor in textile costs, yet they played a vital part in the decline of New England as a shoe manufacturing center. If present rate boosting tendencies are to be realized then the advantageous location of mills in relation to sources of raw material supply and to the principal markets for their manufactures will be of decided importance.

Strategical Textile Plant Location

The same general conditions which govern the location of other manufacturing establishments govern textiles. Proximity to both raw materials and markets are essential for the greatest possible saving in both transportation costs and transit periods. A location, however, most suitable for one style of cotton fabrication would not be most economical for another. A spinning mill located in the cotton belt whose yarn market is in the East is no more economically located in the South than is the spinner in New England, whose market is likewise in New England. On the contrary, a mill weaving ginghams, tire fabric or any finished product ready for use, whose trade is country wide, is much more economically located in the cotton belt than elsewhere, particularly if reasonably near to the centre of population. Finishing plants, likewise, may be most profitably located close to the grey cloth mills and as near as possible to the finished goods markets.

A textile plant in the South has the advantage over a similar enterprise in New England of from 30 to 60 points in the purchase price of cotton and of about 30 per cent in fuel costs as a result of cheaper transportation. It has a shorter transit period on raw material, which means a saving of interest on the investment and gives it an advantage in following a falling cotton market. It has a shorter transit period to the Middle Western markets, and there is a saving to the customer in transportation costs, all of which should aid in merchandising and result in a little swifter capital turnover.

Economy in operation will continue as an essential feature of manufacture and will possibly be a little more necessary in the future than in the past few years.

Many economists agree that the long-time curve of advancing commodity prices that terminated with the boom of 1919-20 will be followed by a long-time curve of declining prices, and that the opportunities for making big profits by anticipating needs will be much more limited than when the general trend of values was upward. This prediction may or may not prove true, but it is evident that only through the strictest conservation and economy for the next several years may the wealth destroyed by war be replaced. Conservation of transit periods, of savings in car miles and savings in needless transportation costs, must result in economies worthy of consideration and thought.

New England's Shoe Industry

Customs and practices surrounding the purchase of cotton, fuel and mill supplies, more often fix prices "landed" than otherwise and hide costs for the transportation of these articles. Although, in times of good profits, transportation costs are less obvious than in lean periods, there is no time when a manufacturer can afford to pay more than his competitor for the carriage of either materials or products. Several years ago the boot and shoe industry in New England failed to recognize transportation costs as an item of merchandising with the result that some of the then large jobbing houses of St. Louis became manufacturers. Proximity to raw material and fin-

(*Continued on page* 399)

* Manager Traffic Department, Lockwood, Greene & Co., Managers.

Cotton Manufactures

The Foster Cone

Model Thirty 6" traverse cone about ¾ regular size

The Foster Cone of Knitting yarn is more than a package of yarn wound on a tapered cone base. The lay of each coil of yarn. The progressively increasing taper as the cone builds up. The concave and convex ends and all distinctive Foster features have been developed to overcome a previous knitting defect, improve the quality of the knit goods or secure more economical operation of the knitting machine.

The high development of present day knitting economy is closely linked with the development of the Foster Cone.

FOSTER MACHINE COMPANY

WESTFIELD, MASS.

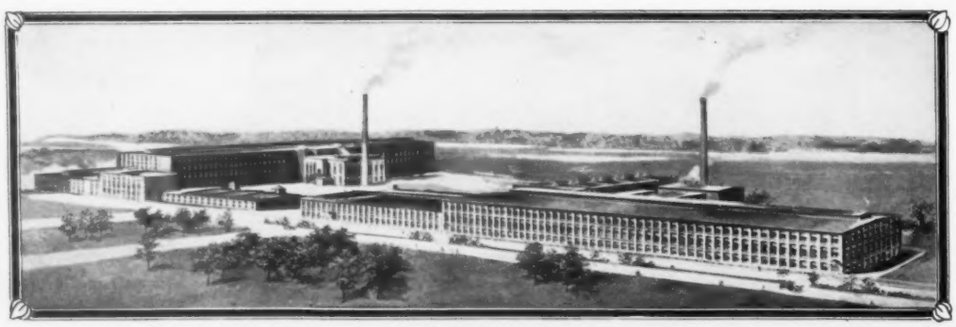
WILLIAM WHITMAN Co., Inc.

MANOMET MILLS Nº 4
Tire Yarns and Cord
Tire Fabrics

MANOMET MILLS
New Bedford, Mass.

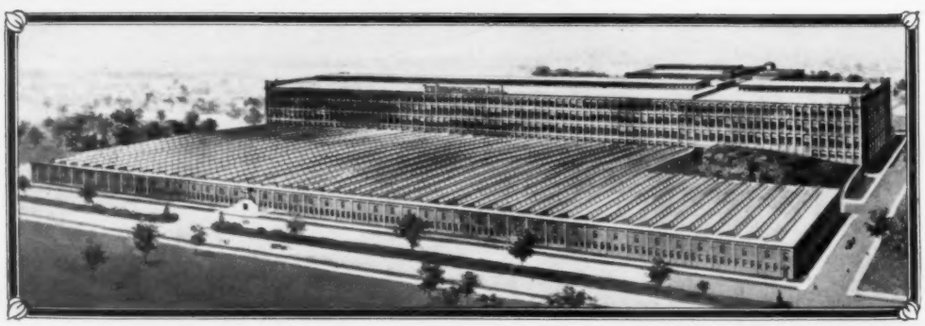
MANOMET MILLS Nº 3
Medium and Heavy Combed Cotton Yarns.

MANOMET MILLS Nº 1. and 2.
Medium and Heavy Combed Cotton Yarns



NONQUITT SPINNING CO.
New Bedford, Mass.
Fine Combed Cotton Yarns.

NASHAWENA MILLS
New Bedford, Mass.
Fine Combed Cotton Cloth.



KATAMA MILLS.
Lawrence Mass., Tire Fabrics

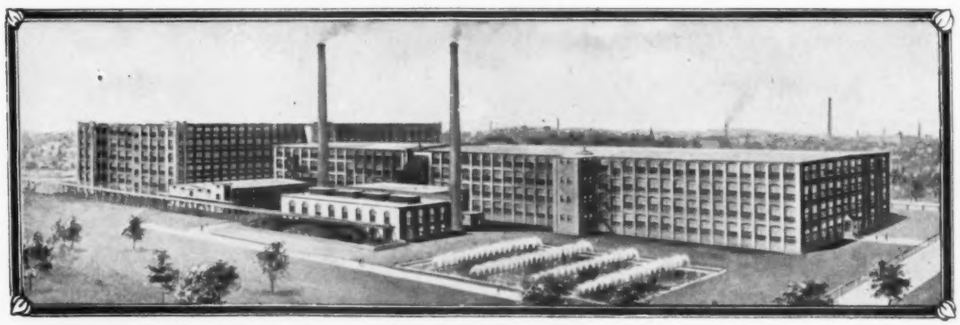
THE CALHOUN MILLS.
Calhoun Falls, S.C. Cotton Goods in Gray

The William Whitman Co., Inc., is the sole selling Agent

GROUP OF TEXTILE MILLS

ARLINGTON MILLS
Lawrence, Mass., Worsted Cloth and Commission Combing.

MONOMAC SPINNING CO.
Lawrence, Mass.
Worsted & Merino Yarns.



ACADIA MILLS
Lawrence Mass., Dyed, Bleached
Mercerized, Combed Yarns.

MARY LOUISE MILLS
Cowpens S.C. Carded Yarns.

HOOSAC WORSTED MILLS
Department of Arlington Mills.
North Adams Mass.

of these mills and directs their policy

At Left Multi-Story Weaving Mill. At Right 4-Story Dye House. The Bridge connecting them is 1000 ft. long.

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INCORPORATED

Danville, Virginia

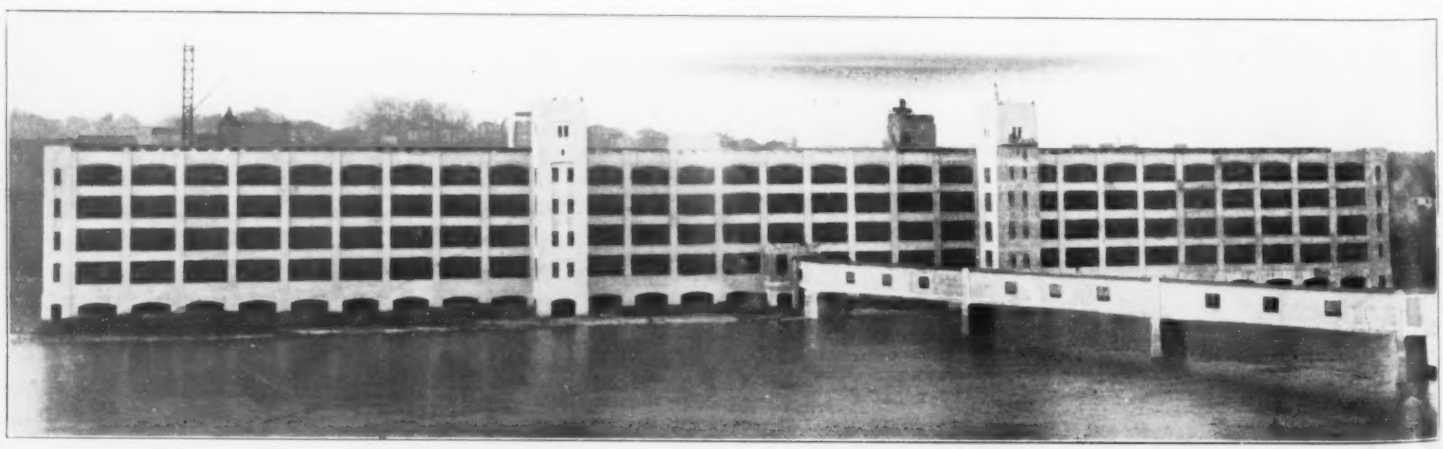
New York Office and Salesroom: 56 Worth St.

Manufacturers of

STANDARD COTTON FABRICS

for the Jobbing and Cutting Trade

Dan River 27" Dress Ginghams—Security 32" Ginghams—Ideal Fine Yarn 28" Chambrays
Riverside 27" Plaids—Golden Rule 28" Chambrays—Defiance 28" Chambrays
Dan River Bleached and Brown Wide Sheetings, Sheets and Pillow Cases



Another View of the New No. 8 Weaving Mill (Shown Above)

Hopeful Attitude Toward Cotton Goods Future

Possibilities of Higher Fabric Prices Based on Developments in Raw Material Lead to Speculation as to Reaction of the Buyer and Its Effect Upon the Statistical Situation—Question of the Future Development of Geographical Importance of the Industry

THE year 1922 in retrospect does not furnish cause for particular repinings. While the first quarter of the year was a period during which manufacturers and sellers infrequently saw the return of a new dollar for an old one and perhaps more frequently witnessed actual losses on transactions, this situation resolved itself before the middle of the year into a period of fair returns and increasing profits as the year closed. And yet those engaged in the distribution of cotton goods are prone to regard the year as disappointing on the whole and to look forward to 1923 as holding in store more of satisfaction and less of worry and apprehension than were in evidence in the twelve months preceding. Last year witnessed an appreciation in cotton prices from 18 to 28 cents. This rise was not a steady one, for there were radical fluctuations both up and down. Such movements in raw material are not calculated to make for certainty in piece goods prices, but rather for decided uncertainty as to what may transpire. Especially they were not conducive to a steady policy in respect to the purchase of cotton. In fact, the situation during much of the year was not conducive to anticipating requirements for raw material and in a good many cases manufacturers were not covered on the contracts for goods which they had taken, with a sufficient supply of cotton.

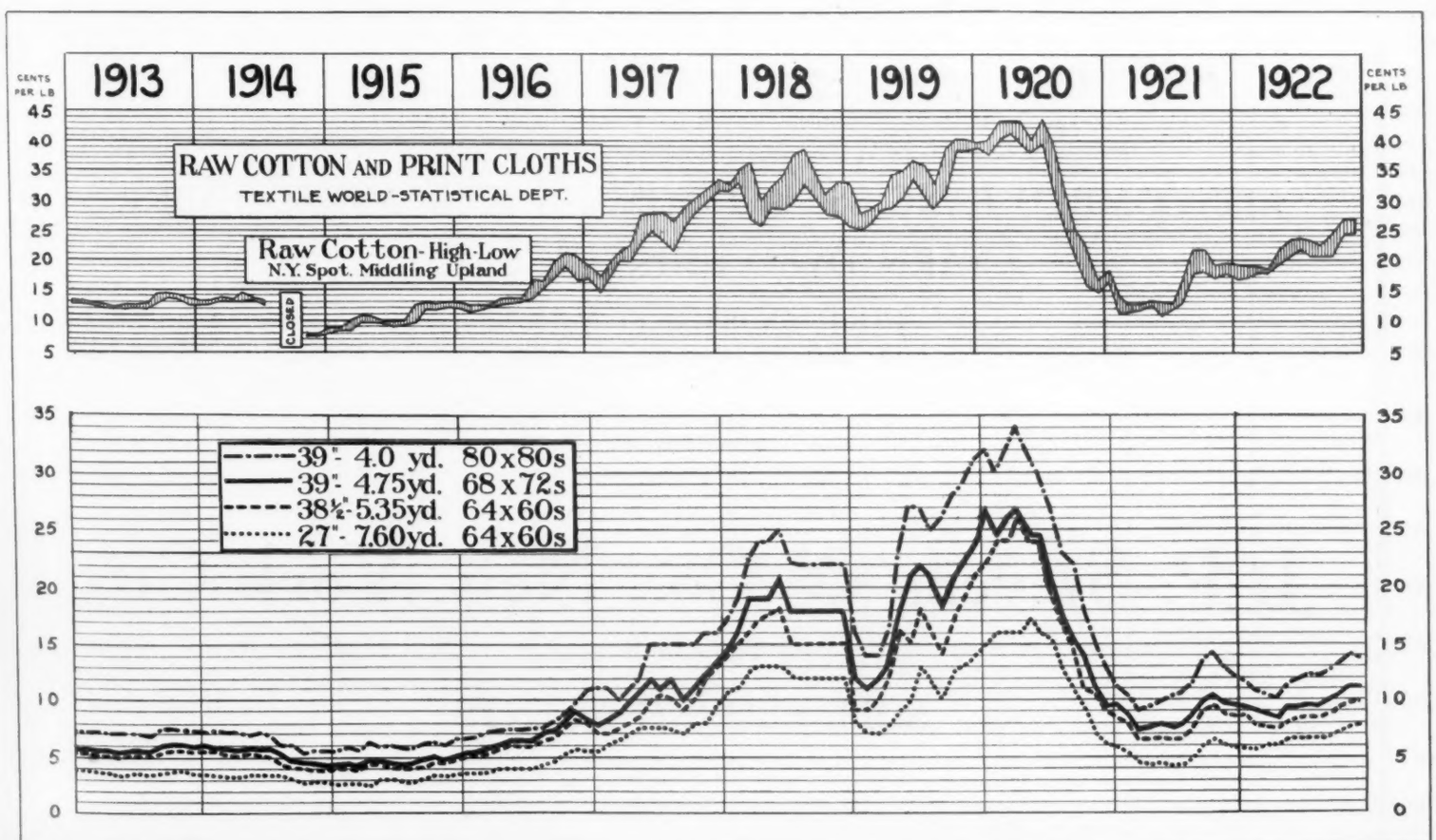
Possible Cotton Future

Today the majority of manufacturers are long on raw material. They have bought their supply to cover contracts in hand and in certain cases have anticipated. It is a question whether many have cotton to last beyond the first of May based on a full capacity of their mills, although there are those who are of the opinion that there would be little speculation in buying considerably ahead of this date. These authorities naturally are of the opinion that the statistical situation warrants the belief in a decided scarcity of raw cotton and a material squeeze in prices which will elevate their level inordinately. On the other hand, there is the feeling that if the first acreage report of the year should show a material increase in the amount planted, the effect would be decidedly repressive and cotton would fall perpendicularly. Also there is the question to be decided as to whether history will repeat itself in a falling off of demand during the latter part of March and April. There are authorities who declare that St. Patrick's Day has so often marked the limit of active business for the season that the same procedure will be followed this year and that any activity which may be experienced in the early part of the year cannot be expected to continue after the middle of March.

The fulfillment of this prophecy, however, is likely to depend in large measure upon the attitude of the buyer toward present and possible prices for piece goods. If the market on manufactured cottons is affected strongly by a rapid increase in the level of cotton it is very possible that demand will be decidedly restricted, and that there will be a back swing to prices that will more than offset any advance which may take place as a result of the rise in cotton. It is realized that there is a point beyond which the distribution of cotton goods will be materially curtailed. What this point is no one is prepared to say nor how far the market can go before a possible repetition of the buyers' strike of 1920 and 1921 is realized.

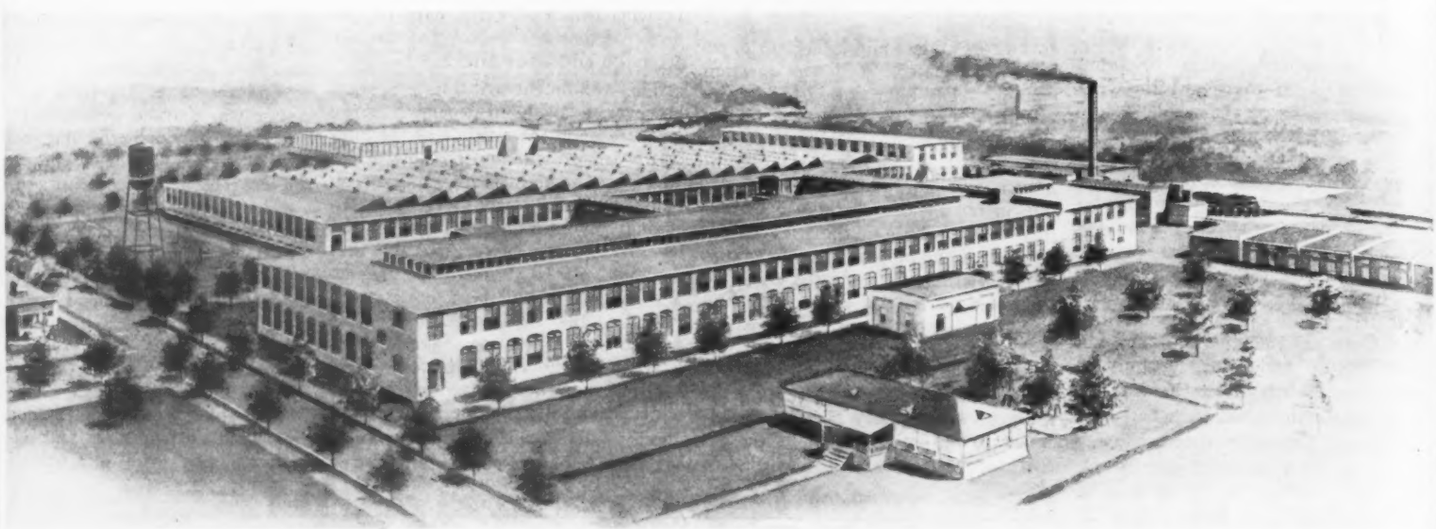
Possibilities of Speculation

On the other hand it is appreciated that there are possibilities in the present situation and in that of the near future for a runaway market. Last year the merchandise situation was such as to have warranted a much larger volume of purchasing on the part of buyers than was realized. And yet comparatively few bought beyond actual requirements and their course was marked generally by conservatism. Undoubtedly had the low prices existing in the first quarter of the year been taken advantage of in a speculative way large profits would have been realized, but almost invariably buyers contented themselves by supplying their needs for a very moderate distance ahead and forewent the possible abnormal profits that might have been realized on large stocks. With this situation in the background it remains to be seen whether buyers will take a more liberal stand on purchases and, viewing the possibilities of higher price levels,



DUNEAN MILLS

GREENVILLE, S. C.



51,000 Spindles 1,200 Looms

ALL COMBED FANCIES—COTTON and SILK MIXED FABRICS
YARN DYED SHIRTINGS, ETC.
FINE COMBED YARNS

J. P. Stevens & Co., New York City

23 Thomas Street

SOLE SELLING AGENTS

will commit themselves for extensive amounts.

It will be remembered that one of the principal reasons for the disastrous smash of 1921 was the speculative buying of irresponsible operators, many of whom were new Richmonds in the field and whose unfamiliarity with the game caused them to throw overboard lines of goods which they had bought when the market began to go against them. This brought about a competition of merchandise which had been sold by first hands against further operations by this class of seller. It would seem that the lesson had been learned and that any repetition of this procedure would be impossible. Indeed it has appeared of late that steps have been taken in certain quarters to prevent just such character of buying. While sellers are anxious to distribute as large a proportion of their product as can be legitimately disposed of they are scrutinizing credits very carefully and are not allowing buyers whose past performances indicate any illegitimate character of operations to come into the market for large quantities. In addition there is also in evidence of late a tendency on the part of manufacturers to withdraw lines rather than to sell their product ahead further than they are covered on their raw material. One of the reasons given for the present high price of cotton, irrespective of the belief in a comparative shortage of the crop is that cotton on contract in the hands of manufacturers has not been called. In other words, a good many manufacturers while being long of cotton, as far as contracts are concerned, have not yet decided as to what price they will name on these contracts and it is believed that speculative interests knowing this have been able to keep up the market. This is another cause for belief that prices on cotton goods must be maintained for the level of costs cannot be regarded as particularly favorable to lower price levels.

The Strike and Its Effect

The strike among New England mills which began about the first of February in a wage reduction of 20 per cent. in Rhode Island plants and which spread to other manufacturing centers with the exception of Fall River and New Bedford, has had a widespread influence upon the market and upon the action of manufacturers. After six months or more of idleness, the strikers went back practically on their own terms and the contemplated reduction was never in effect. Also the contention for shorter hours of labor was substantially won by the strikers. The effect has been varied. There are those who feel that had the large aggregate of machinery involved been operating to capacity during the period of the strike, the situation in certain lines of goods would have been far less healthy than has been the case during the year. This statement applies particularly to dress ginghams, which although in a healthy statistical position before the labor difficulties broke out gave evidence of more or less accumulations which might have lessened the satisfaction of manufacturers with the situation and might have caused buyers to refrain from operations. The elimination of certain of the more prominent gingham mills gave an opportunity to southern manufacturers to dispose of their products on a favorable basis and the market continued strong and in the seller's favor. Jobbers have complained for a long time about the impossibility of securing delivery of ginghams at a period which would enable them to distribute this merchandise to their customers in a satisfactory way. It is very possible that had the supply of ginghams been up to normal their contention would have received very serious consideration from manufacturers. With the supply limited, however, producers have been more or less independent and there has been a disregard of buyers' contentions.

The situation on napped goods was even more affected by the withdrawal of machinery on this class of goods. The result has been that stocks in jobbers' hands have been limited to a degree and it is the general belief in the selling market that distributors have gone into the new year with a smaller amount of napped goods on hand than in a good many years.

Competition of the South

One of the principal subjects which has engaged the minds of cotton manufacturers throughout the country during the year has been the question of the increasing competition from southern mills and the possible removal of certain manufacturing units from New England to the southern territory. Much irresponsible talk has been heard regarding the probable outcome of conditions as they have developed so far and as they are likely to develop. It is impossible in a review of this character to go into details affecting the situation pro and con. There is no doubt of the impossibility of removing the New England cotton goods industry bodily into another territory. Investment is too large and the interests involved too extensive and complicated to make it impracticable to consider such a move. At the same time, the belief is growing in a good many quarters that the next year or two are likely to witness a comparatively small increase in the capacity of New England textile plants and that the growth of the industry is to be in the South. This growth may not be along the lines of complete plants to be erected comprising independent units, but may be confined to additions to existing corporations with enlargements of particular departments which may be conducted favorably as well in the South as in the North. For instance, the southern development to date shows most vividly the possibilities of new bleaching and finishing plants of which a fair number have already been projected and others are rumored. This means that the variety of fabrics produced in the southern territory is to be expanded and that it is no longer to be known as the section where the coarse, unfinished fabrics are in great preponderance. Another development which seems to be proven by the announcement of future plans is the installation of weaving machinery in yarn mills, especially those operating on the finer numbers.

This would mean that this character of product will be converted in the South and the profits accruing from this process will be realized by southern manufacturers rather than lost to them by the necessity of confining their operations to the spinning of the material which enters into woven fabrics.

The competition between the North and South is not only based on labor conditions, but more particularly on the question of hours. The advantage which the southern manufacturer has had in a 54 to 60 hour week as against the 48 to 52 hour week of the New England manufacturer has been one of the principal factors in inducing the latter to look into the possibilities of transferring at least a portion of their operations to the South. Southern manufacturers realize the possibilities of increased machinery capacity in the South, including the possible scarcity of labor as a result of increased demand, also the unionizing of operatives and the development of a situation combining as many handicaps as those currently experienced by northern manufacturers. It is impossible to tell just how far the exodus to the South will develop. Much depends on the possibilities of legislation and of labor supply. The increasing satisfaction with southern goods, however, will, it is believed, lead to a more or less continuous change toward higher-priced and exclusive lines in the North, but to a development in the South toward certain classes of merchandise that have never before been made to a large extent in southern plants.

Handicaps to Export Trade

Rising Values of Domestic Goods, Untoward Financial and Commercial Conditions Abroad Restrictive Factors

PROSPECTS at the beginning of the year for an enlargement of an export trade in textiles do not appear particularly cheerful. The year 1922 was beset with a good many difficulties and handicaps for those engaged in the development of export trade and 1923 gives few signs of any marked improvement. There is always, of course, the underlying belief that conditions abroad will eventually compose themselves and that with the settlement of international complications markets for American textiles will again resume proportions of satisfactory character and opportunities for material development. At the moment, however, conditions abroad are far from encouraging and in fact seem to be about as bad as could be imagined. It is recognized that foreign markets are bare of merchandise for the most part and once there is ability to buy the vacuum to be filled is of such extent that the prospect of exporting goods will be materially enhanced.

Rising Prices a Handicap

Through the latter part of 1922, and particularly at the present moment, the factor of advancing prices for cotton goods has reacted unfavorably upon a free distribution of such goods in foreign channels. There has always been the complaint by exporters that it was difficult to do business on American goods because quotations were so uncertain and their continuance at a specific level not to be relied upon. In this respect the situation differs from that in England especially, where stability and continuity are the distinguishing characteristics of export prices. With an increasing domestic demand during the last few months and with more or less constant advance in raw material, this objection on the part of the exporter has been particularly prominent and the market has been correspondingly affected. Such a situation will continue and American exports will be handicapped just so long as domestic manufacturers fail to set aside a certain proportion of their product for the filling of export requirements. Such procedure is not likely as long as the domestic trade continues to take the full quota of goods produced. It remains for a period of slack demand to demonstrate the feasibility of such a course, with a possible accumulation of stock that may be set aside for export demand to be moved at a profit when conditions justify.

Loss of China Market

There has been a gradual but decided diminution in the business done with China over an extended period, but the history of 1922 marks probably the largest loss in trade with that country which has ever been experienced. Many have been the predictions in the past that the China market was eventually to be lost to the American manufacturer, but it would seem as though this prophecy had been well nigh realized, and that the future holds little prospect of recuperation. Internal unrest and demoralization have been prime factors in decreasing the import trade of China on textiles from all countries, in which America has shared proportionately to other competitors. Recent reports hold out a certain amount of encouragement for improvement of conditions in the interior, making it possible to guarantee the delivery of merchandise from Shanghai. During the prolonged period of civil strife robber bands have vied with one another to secure

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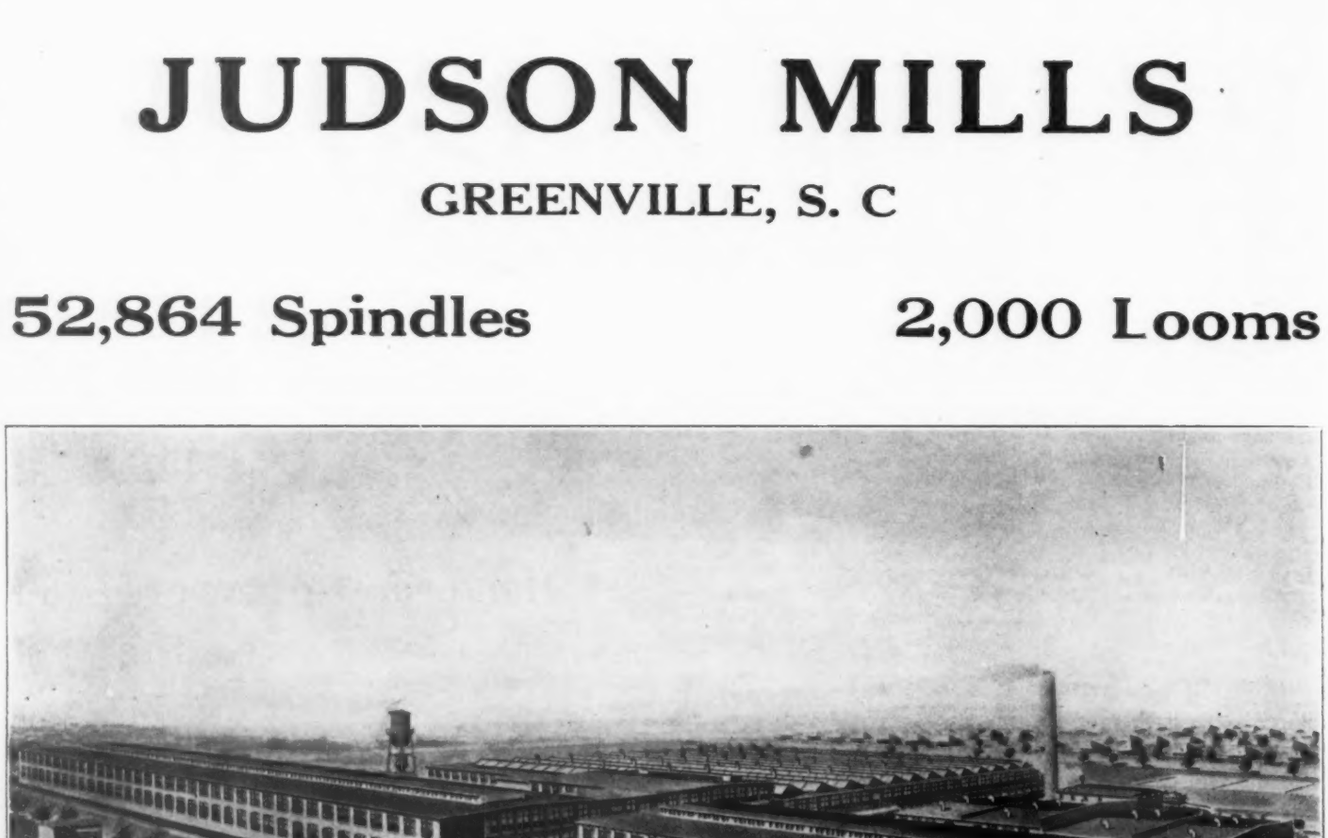
52,864 Spindles **2,000 Looms**



Manufacturers of fine and fancy colored tissues, voiles, lawns, mixed silk and cotton dress goods, handkerchief cloths, etc. Also combed peeler mercerizing twist ball warps.

SELLING AGENTS:

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58 WORTH STREET

NEW YORK, N. Y.

possession of the shipments inland, with the result that there was no assurance at any time that orders of merchants throughout the country would ever be filled. In spite, however, of the possibilities of such improvement there is little encouragement therein for the increase in demand for American goods. The Chinaman usually sells what he has and if demand for an American brand which is not in stock is received the attempt is made to substitute other samples from some of his own brands, advising the buyer that the old chop is not to be had and that new selections must be made. If the order is filled with such new chops, the value of the old is practically lost.

America's Reputation Endangered

This leads to a condition of practical elimination of American goods. So far as can be learned practically nothing in the way of American sheetings is in the hands of Chinese jobbers in Shanghai. At least, the quantity is so negligible that orders cannot be filled even if received. If, as mentioned above, requests from the interior are met with the substitution of English or Japanese goods, the American chops will be permanently displaced and the prospect of their reestablishment will be very doubtful.

To overcome this situation requests have been made in a number of cases by prominent piece goods factors in Shanghai that a small amount of well-known brands of American goods be consigned to China to be sold on a parity with existing prices for other lines. The purpose of this suggestion is to keep the American chops before the Chinaman so that when renewed buying takes place he will not have forgotten the character of the goods and the descriptive brand and will turn again to the purchase of domestic fabrics. To do this means an actual loss on all such consignments estimated as at least 20 per cent. below prices quoted today. This proposition has not met with favorable response from sellers in the local market who prefer to lose the advantage they now have of a slight preference in price on account of the favorable market for their chops, because of unwillingness to undergo the loss that will be sustained. The results of such an attitude on the part of domestic manufacturers are well known in certain other export markets and it would seem as though they would be similar in China and that the foothold of American cotton goods will be absolutely lost to this country. Exchange is unfavorable to the purchase of American goods and the possibility of doing business at the moment is nil. Either exchange must advance or English, Japanese and even Chinese goods must advance for contracts to be made. Chinese authorities declare it would have been possible to have contracted for a regular monthly supply of American goods of very satisfactory proportions if prices had been as low as those quoted by local mills and English and Japanese manufacturers, but the possibilities of competition in the future are small, they declare, and the positive prophecy is made that unless something radical is done along the lines mentioned above American chops will soon be unknown and American goods will be eliminated from the China market.

Chinese Mill Development

A year ago in these columns it was stated that one of the most favorable prospects in China was the development of local mill construction. This prophecy has been fulfilled to a certain extent during the year and the prospects of much greater development would appear bright. The status of native mills controlled in large part by English or Japanese capital has been eminently satisfactory. Large dividends have been paid and enlargements have been made to existing plants, as well as new ones erected. There is no doubt that this development has had a marked effect upon the imports of cotton goods into the country. Of course, it will take some time before the capacity of native mills will be sufficient to satisfy the requirements of the immense Chinese population. So far the variety of fabrics made has not been extensive, but with the purchasing capacity of the country reduced to a minimum by internal political troubles, floods, famine, etc., there is no great demand for a wide extent of cotton goods and only the cheapest qualities can be moved.

However, with the prospect of improved financial and commercial conditions the outlook for further development of native mills has apparently been regarded as worthy of investigation and experiment. As far as this country is concerned, not only has this investigation been made and the idea adversely considered, but in one instance positive developments are under way with the prospect of large development in the near future. The outstanding corporation that has been formed as a subsidiary of the Chinese Industries, Inc., and known as the Universal Textile Corporation, comprises important domestic manufacturing units, including cotton, textile machinery and dyestuff manufacturers, who have already taken steps to increase the mill capacity of China, the control being in the hands of Americans, but with the co-operation of important China interests. Favorable legislation to the development of activities of this character has been passed and with the backing of the interests mentioned the possibilities of native production seem almost unlimited. What will be the eventual outcome remains to be seen, but it would appear as though the total import of cotton goods into China will become gradually less and less as the native mill units increase in number and size.

Selling Methods Change

Just before the close of 1921 an event occurred that has had its influence upon business in the Red Sea, East Africa and India throughout the year 1922 and will doubtless continue as a development of the current year. At the time above mentioned the announcement was made of a disastrous failure of an export house which developed a large business with these markets, but which evidently had overreached itself in the attempt to become the outstanding figure in the export trade. While the developments of financial troubles connected with this concern disclosed unethical practices and procedure that bordered on the criminal, the original plan, as viewed in retrospect, appears to have been sound. Had the members of the firm in question been content to see their business increase legitimately, the relations of America with this part of the world, as far as cotton goods are concerned, would probably be today decidedly satisfactory. The results of speculative commitments on merchandise destined for these ports meant not only an accumulation of stocks in Aden and other centers of piece goods distribution, but likewise spelled one of the most disastrous experiences for selling agents in this market that has ever been their lot.

The final result has been the formation of a company which primarily was organized to liquidate the stocks in these markets, but which has developed a direct business with responsible parties in the Red Sea practically on a consignment basis. The distributor is said to be of such size and his financial status so satisfactory that the future of this business may be very sizable. Whether a consignment proposition could be worked out in other directions to develop an export trade is questionable, for everything depends upon the credit standing of consignees. As in the attempt on the part of the Chinaman to develop business of this character, it is believed it is likely to prove abortive in the majority of instances.

South America and Cuba

Business with South America has been more or less spasmodic during the year. There has been nothing regular about the demand for goods and yarn, although the aggregate shipment of merchandise to Latin America has been a very important part of the export business of the year. Development of the yarn business has not panned out as satisfactorily as could be desired. Buyers have been unwilling to follow the market up and doubtless competition from England and possibly from Japan has been effective in limiting the volume of orders. The financial situation here also has not been conducive to a large volume of business, while crop conditions have also interfered with the free passage of goods.

Cuba is far from normal; nor is there a complete settlement of the obligations of Cuban merchants for American merchandise. While stocks are more or less liquidated, there is still a far larger amount of goods on hand in Cuba than could be desired and it may be a long time before normal conditions again apply. Here also crop conditions have played and continue to play an important part in the lack of expansion of American trade. While a fair volume of merchandise has gone to the Philippines during the year, it is by no means of record proportions and stocks are not particularly low. Competition is also felt here from English manufacturers.

The Year in English Cottons

Some Improvement on 1921, but Conditions Still Very Unsatisfactory in Lancashire's Industry

By *Frederick W. Tattersall*

MANCHESTER, ENGLAND.

ALTHOUGH in some respects the conditions in the Lancashire cotton industry were better during the last year than in 1921, the trade as a whole remained in a state of depression. There was a marked increase in the shipments of yarn and cloth to foreign outlets and the home trade was fairly encouraging. The trade done, however, was not sufficient to keep all the spindles and looms at work, and unemployment was rampant. There were occasions when signs of a definite revival of demand showed themselves, but the buying movement was not maintained, and immediately spinners and manufacturers tried to secure remunerative prices, customers withdrew from the market.

There was considerable anxiety with regard to future supplies of raw cotton, especially towards the end of the year. The conditions which prevailed in the New York and Liverpool markets were favorable to speculative operations, and undoubtedly legitimate traders were adversely affected by the work of gamblers. From month to month there was nervousness as to financial difficulties, and numerous failures were recorded. Trouble of this kind was largely due to depreciation in the value of goods, the drop in foreign exchange rates, and the refusal of dealers abroad to accept deliveries against old contracts. It is feared that difficulties in this connection are not yet over, and it may be said that numerous firms that were in a strong financial position a couple of years ago are now experiencing much difficulty in keeping their heads above the water.

Last January the trade depression was exceedingly acute. In the early spring a distinct improvement in demand showed itself and the Manchester market continued more active up to about the end of July. A slacker state of affairs was then met with which was put down partly to the holiday season of the year. In September, however, the Near Eastern political crisis had a most vital

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Bedford Cords—Made of white cotton, they have long been recognized as the standard of quality for superior fabrics.

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Pajama Checks—Of excellent quality for underwear.

Seneca Pillow Tubing—A tubing of good quality, proper finish and moderate price. All widths, attractively put up for the jobbing trade.

Three Leaf Twills.

Wide Sheetings for Auto Tops.

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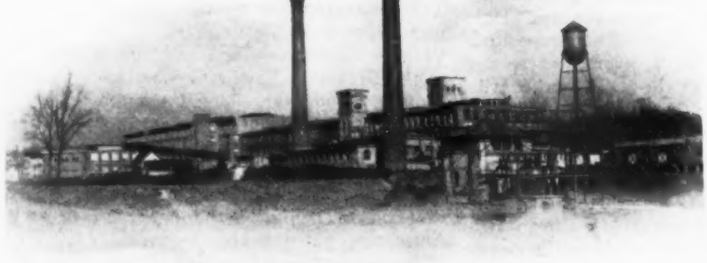
Wide Sateens.

Walhalla, Seneca, Arena, Plaza, Panama, Value, Rambler, Giant, Full Speed, Nugget Brown Sheetings.

Monaghan Crinkled Bedspreads,
Monaghan Dimity Cord Quilts.
—For dainty homes.



VICTOR PLANT

VICTOR MONAGHAN CO.

RIDLEY WATTS & COMPANY, *Selling Agents*

44-46 Leonard Street, New York

effect upon traders, and business was brought to a standstill. The striking rise in raw cotton prices a little later blocked progress as buyers refused to pay the advances required by sellers of yarn and cloth.

Irregular Cloth Demand

Compared with 1921 the experience of manufacturers of cloth was rather better. The conditions in the Manchester market, however, were far from favorable and it was hard work for most firms to prevent serious losses. The Board of Trade returns, however, show distinctly larger shipments and undoubtedly in many respects the demand was more encouraging. When the question of prices is considered, however, there was nothing good to be said. The business done was not sufficient to strengthen the position of makers, with the result that buyers were able to obtain goods at prices which showed a loss, or only just covered the cost of production. On several occasions a buying movement came to an end when there were indications of sellers getting into a stronger position and being able to enforce remunerative terms for contracts.

Last January it was estimated that nearly half the looms in Lancashire were standing idle for want of work. The depression was very acute. In February inquiry broadened and owing to producers booking more orders there was an increase in production and less unemployment among the operatives. The better demand kept up fairly well, and during the summer it looked as though a definite turn in the state of trade had taken place. By the end of July about 90 per cent. of the looms were working and in certain sections of manufacture employers were booking orders at a profit. A quieter feeling then set in and the slacker state of affairs was intensified by the political news from the Near East. Since then manufacturers as a body have lost ground and during the last couple of months there has been a tendency for more machinery to stand idle.

Position in India

It is impossible to exaggerate the importance of the India market to Lancashire manufacturers, and if business for that part of the world is not healthy, the industry cannot be active. Demand during the last twelve months was very irregular. An improvement, however, was recorded in the buying compared with 1921. A very favorable development was the damping down of political unrest. The prosecution and sentence of Gandhi, the agitator, undoubtedly relieved the situation to a great extent. Fewer attempts were made to boycott English cloths. There was an improvement in the export trade of India and the balance of trade for several months was in her favor.

With regard to the several outlets for piece goods the most encouraging news came to hand from Calcutta and although buying was irregular a very fair business was done. Dealers in Bombay were slow to recover from the slump in prices and much difficulty was experienced by Manchester merchants in effecting satisfactory arrangements relating to the taking up of goods against old contracts. A useful business was done for Madras and a fair turnover was reported from time to time for Karachi.

The China Market

Shipments of piece goods to China during the last year were larger than in 1921 but buying was very patchy. A fairly substantial business was done last February but in a few weeks leading operators appeared to have satisfied their wants and further purchasing was checked by the unsettled political situation. For several months the demand in standard makes was very disappointing but fairly steady buying took place in fancies.

Towards the end of the year advices from Shanghai improved, and there seems to be a possibility of a revival of demand before long.

The Home Trade

Most of the home trade houses had a moderate year. A better state of affairs prevailed in the spring, but during the summer owing to the unfavorable weather, clearances in light fancy materials did not come up to expectations, and some firms were landed with rather heavy stocks. Considering the amount of unemployment in the leading industries of the country, the home trade did not do badly by any means. Manufacturers reported a fairly healthy demand during the autumn and clearances in the retail establishments were fairly encouraging. Calico printers and bleachers were not able to run all their machinery but they secured remunerative prices for the work done.

The following table gives the exports of cotton cloth from Great Britain for the last ten years:

	Yards	£
1913	7,075,252,000	97,775,855
1914	5,735,744,500	79,175,171
1915	4,748,452,900	64,691,828
1916	5,254,222,700	88,787,890
1917	4,978,237,900	112,810,497
1918	3,699,252,300	138,515,962
1919	3,528,756,500	178,955,943
	Square yards	
1920	4,435,405,000	315,717,631
1921	2,902,659,000	137,168,336
1922	4,181,176,300	142,415,686

The following is a list of cloth quotations during the last twelve months on particular dates:

1922	32 in. Printers 116 yds. 16 x 16 32s & 50s		36 in. Shirtings 76 yds. 19 x 19 32s & 40s		38 in. Shirtings 38 yds. 18 x 16 10 lb.		39 in. Shirtings 37½ yds. 16 x 15 8¼ lb.	
	s.	d.	s.	d.	s.	d.	s.	d.
Jan. 6..	30	6	30	0	19	0	17	6
Feb. 3.	28	6	28	0	17	9	16	6
Mch. 3.	28	0	28	6	17	3	16	0
Apl. 7..	29	3	29	6	17	6	16	3
May 5..	29	3	29	0	16	9	16	3
June 2..	31	0	29	9	17	9	16	6
July 7.	32	0	31	6	18	6	17	0
Aug. 4.	31	9	30	6	17	9	16	9
Sept. 1.	32	0	32	0	18	0	16	6
Oct. 6..	29	9	30	6	18	0	15	9
Nov. 3..	30	9	32	6	18	3	16	9
Dec. 1.	31	3	33	0	18	3	16	9
Dec. 20	30	3	32	9	18	3	16	6

Spinners' Unsatisfactory Position

As a consequence of the larger trade done during the year in piece goods the consumption of yarn increased. Shipments to foreign outlets were much bigger than in 1921 and owing to there being more activity in the weaving districts of North and North East Lancashire the consumption of twist and weft at home broadened. From month to month, however, the position of spinners was anything but satisfactory. There was not sufficient trade to enable sellers to secure profitable prices for their production. Numerous companies experienced very severe losses and throughout the year there was a tendency for more mills to cease paying dividends, and the average dividends announced were smaller than ever.

In all kinds of American yarn the demand except on a few occasions was of a dragging character. Users purchased from hand to mouth only and at no period was there any stimulation to anticipate future requirements. It was possible to secure deliveries from stocks and, owing to numerous spinners pressing sellers, users met with no difficulty in obtaining supplies at prices which meant a loss to the producer, or at figures which only just about covered the cost of production. In the circumstances there was a tendency for mill share values to decline, and quite a number of companies were quoted at a discount as operators feared further calls.

Speaking generally spinners of Egyptian yarns did rather better than producers of American qualities. There was not the same amount of curtailment of production in Bolton as in Oldham. The prices which ruled, however, for fine yarns were not at all satisfactory. Now and again business on a freer scale was done but buying movements were not of long duration. As seen from the Board of Trade returns shipments of cotton yarn from Lancashire were much bigger than in 1921. The improvement was chiefly due to the larger exports to Continental countries such as the Netherlands and Germany. Buying for eastern markets was patchy. In the summer a fairly substantial business was done for India and also for China, but towards the close of the year demand was much quieter.

The following table gives the exports of yarn from Great Britain for the past ten years:

	Pounds.	£
1913	210,099,000	15,006,291
1914	178,496,800	11,973,236
1915	188,169,200	10,314,904
1916	172,170,600	13,428,897
1917	133,151,300	16,695,194
1918	101,711,400	21,389,140
1919	162,665,500	33,911,554
1920	147,432,400	47,585,814
1921	145,904,900	23,928,459
1922	201,220,800	26,436,489

The following is a list of cotton and yarn quotations for the past twelve months:

	Cotton Fully Middling American	American Yarns 32's Twist	40's Weft	50's Weft	Cotton F.G. Fair Sakellaridis	Egyptian Yarn 60's Twist
	d.	d.	d.	d.	d.	d.
Jan. 6..	11.39	18¼	17½	21¾	21.50	30
Feb. 3..	9.70	17	16	19½	16.25	27
March 3..	10.28	17	16¾	19½	17.00	26½
April 7..	10.60	18	17	20	17.50	27
May 5..	11.15	18¼	17¼	20½	17.75	27
June 2..	12.18	19½	18⅝	21½	19.25	29
July 7..	13.65	21	20¼	23	20.00	30
Aug. 4..	13.16	19⅞	19¼	22⅛	18.00	28½
Sept. 1..	13.80	20½	19⅝	22⅝	18.00	28½
Oct. 6....	12.52	19¾	19	22	17.15	28
Nov. 3....	14.66	21	20¼	23¼	17.75	28
Dec. 1....	14.79	21¼	20½	23⅝	18.25	28½
Dec. 20....	15.08	20½	20	23¼	17.80	27½

Cotton Mill Shares

Throughout the year there was a tendency for spinning companies to reduce their dividends and there was a steady decline in the average amount distributed to shareholders. Comparatively few mills are now in a position to pay any dividend at all and more cases are being mentioned of concerns being in financial difficulties. The following is a representative table of cotton mill companies showing the drop during the year in the value of the shares. In each case the shares are of the nominal value of £1 with 10/- called up.

Company.	Jan. 4, 1922. s.	d.	Dec. 13, 1922. s.	d.	Fall. s.	d.
Arkwright (Rochdale)	8	0	7	3	.	9
Boundary (Oldham)	4	6	2	6	2	0
Cairo (Oldham)	7	0	5	3	1	9
Delta (Oldham)	5	0	2	4½	2	7½
Ena (Atherton)	4	9	2	6	2	3
Fern (Oldham)	13	0	7	6	5	6
Greenacres (Oldham)	7	6	3	3	4	3
Hindley Twist (Wigan)	6	3	2	6	3	9
Ivy (Failsworth)	4	3	3	0	1	3
Lees Brook (Oldham)	8	0	3	0	5	0
Malta (Middleton Jct.)	7	9	6	0	1	9
Newby (Oldham)	4	0	1	6	2	6
Oldham Twist (Oldham)	12	6	7	9	4	9
Parkside (Oldham)	12	6	7	10½	4	7½
Ram (Oldham)	5	3	1	3	4	0
Stockport (Stockport)	9	9	5	3	4	6
Townley (Middleton)	9	6	5	0	3	6
United (Oldham)	9	3	4	7½	4	7½
Wellfield (Rochdale)	5	0	3	6	1	6
Wilton (Radcliffe)	1	9	1	1½	.	7½

Prospects

In considering what happened during the last year it must be said that among traders there is much disappointment at the very small progress made in establishing more settled conditions in the leading countries of the world. The Lancashire cotton industry is first and foremost an export trade, and spinners and manufacturers cannot do well unless there is peace and security abroad. The future, therefore, depends to a considerable extent upon the political developments during 1923. If a settlement of the Near Eastern trouble is arranged a big step forward will have been made. The countries in that part of the world are short of supplies of manufactured cotton goods.

The trade outlook in India may be described as encouraging, but Lancashire prices are still much higher than in 1914, and the natives are not in a position to purchase large quantities at current rates. A big business will not be done until it is possible to sell goods at much lower figures than those ruling today. There are hopes of China providing an increased turnover, and recent advices from Shanghai have been more favorable.

Spinners of yarn are very largely dependent upon the demand for cloth. It is reasonable to anticipate that trade will be healthier than during 1922. Extensive buying may not take place, but it is likely that the urgent needs of consumers will be sufficient to provide more work than at present for employers and operatives. A discouraging feature at the present time, however, is finance. Numerous failures have taken place during the last twelve months and it is feared that more cases of difficulties will have to be faced in the near future.

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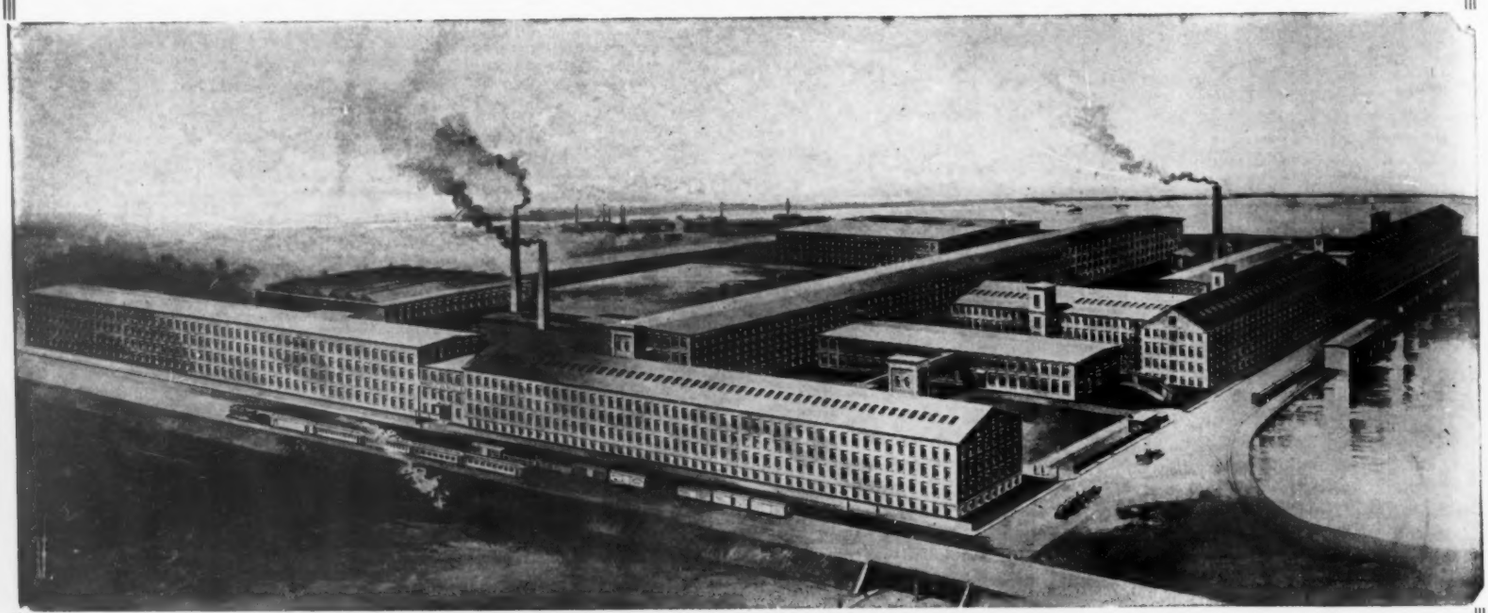

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Results of Foremen Training

Lowered Costs and Increased Production Follow—Records from Mills in the Textile Industry

By *B. M. Nussbaum**

FOREMEN training has been operating four or five years now as a fairly definite movement in American industry, and it is time that some reckoning be made of its results. Various claims have been made by the advocates of training, and the reactions of executives to these have varied. Some, because the foremen training movement was born of the stress of war, have thought it merely another of those wartime fads. Others have regarded it as an admirable thing in theory, but impossible in practise. And so on. This article will be concerned entirely with results. Nothing will be said of claims, of methods, or of theories of training.

First of all, foremen training has increased production. I can cite here only a few records, but these are typical of many more that might be given. In an eastern plant, the head of a department increased output from 400 units per man to 700. In another plant, an increase of 42 per cent. in the departmental production of a certain division that had been lagging behind was made. In each of these cases, the increase followed a course of foremen training, and the results were credited by the foremen themselves to ideas gained from the training.

The vice-president of a southern woolen mill recently stated that the production of his mill for the current week was the largest of any week within two years. "And we are turning out better work as well," he added. He attributed the increase to the improved personnel and methods resulting from the course in foremanship just completed in that mill.

The superintendent of an important plant in Aurora, Ill., announced recently in the house magazine of his company that the production efficiency of his organization had increased approximately 100 per cent. during the last twelve months as a direct result of foremen training.

In another Illinois factory, where a three months' intensive course in foremanship had been given, the production increased 34 per cent. over the corresponding period of the previous year. An executive of the company, in reporting these figures, attributed the increase largely to the better foremanship which the plant was getting as a result of the training.

The president of a large silk manufacturing concern estimates that his company saved $100,000 last year through economies and improvements suggested by employes; and the greatest single factor in stimulating the organization to think up these suggestions, says the president, was the foremen training course, which not only bettered the foremanship but also quickened the interest and cooperation of the entire rank and file.

Another textile mill, whose name I could mention and it would be instantly recognized by practically every executive in the industry, came through the depression of 1921-1922 in admirable shape, when most of its competitors were going part time, some of them shut down. And the reason for this exceptional condition, according to one of the executives of the company, was the high grade of foremanship which it enjoyed as a result of a consistent policy of foremen training. No specific figures of production records were cited, but the executive said that because of superior foremanship they were able to keep costs down and undersell competitors—and thus continue business at a fairly normal rate when others were struggling to keep afloat at all.

Keystone of the Structure

Of course it is not always possible to connect an improvement in production directly with foremen training. Usually a plant which has a program for improving its foremen, also has other enlightened policies of personnel work, skilled engineering, and other factors, all of which must be reckoned in any production result. But very often the enlightenment of the foremen is the keystone of the whole structure of production efficiency. Thus, the superintendent of a large knitting mill in the Middle West recently spoke of the greater efficiency of the mill records since the foremen had been carried through a course of training. The record system was there all the time, but the trouble was that the foremen were not sympathetic with it. They looked upon records as so much red-tape. Through the foremen's course their eyes were opened to the practical value of records, and the result is the present cooperation.

So too in the matter of labor turnover. We all know that this is an expensive luxury, at any time; particularly in a time of abnormal conditions when the mill has the need of its most experienced and skilled operatives and can least spare the time and expense of hiring and breaking in new ones. The personnel manager of an important plant in New York stated that labor turnover was reduced 50 per cent. following a program of foremen training. "The foremen were applying the principles of modern man-management to the handling of their help," said this executive, "and the result was directly reflected in our employment records."

Definite Results Noted

While it may not be possible in every case of increased production to trace the improvement directly to improved foremanship, there are certain results that directly follow foremen training. In plant after plant, wherever a program of foremen training has been put over, one or more of the following results has been noted: Better understanding by the foremen of the policies and problems of the management; greater cooperation between foremen and brother foremen and between the foremen and the general management; a quickened interest on the part of the foremen in new ideas and methods, and the continuing interest of the foremen in improving the foremanship of the plant. Each of these factors is a direct contributor toward operating efficiency and increased production. In fact, it is fair to say that whenever one or more of these conditions exists in a plant, the effects will sooner or later be reflected in bettered production.

"Immediately after we had started the training," said the general foreman of an Indiana plant, "I noticed a more hearty cooperation among the different foremen. They were trying to help each other out of their difficulties to a much greater extent than I have ever seen a bunch of foremen in a plant of this size. I can also see a big difference in the way they handle their men. Most of the foremen are now doing more studying of conditions in their department, and are also starting a system of planning their work." Independent of this statement from the general foreman, the employment manager of this same plant said: "Our labor turnover has decreased to a certain extent in the short time we have been studying this."

Somewhat the same report of the results of training in the Palmer Mill at Three Rivers, Mass., was given by one of its foremen in these words: "After the first lecture a decided improvement was noticed pertaining to cooperation and good fellowship. Being one of the foremen of the class, I can readily see it has helped me to improve conditions in my department and has helped me to cooperate with my fellow workers to such an extent that the quality of the work going out from my department has decidedly improved."

The manager of the Indianapolis plant of Bemis Bros. Bag Company listed the principal results accruing to his organization from the foremanship training as "greater teamwork, better aptitude, more planning of work before attempting to do it, watching the cost more closely, and closer cooperation."

Perhaps one of the most significant results of foremen training is its discipline of the foreman's mind into habits of study. Many executives find that one of the most serious obstacles to the introduction of improvements in a mill is the closed-mind attitude of the average foreman. And in fact, so prevailing is this attitude that many executives have declined to attempt a program of foremen training because they were convinced that foremen would not study. This is an important point, for obviously money spent on a study system which failed to win the foremen's cooperation would be just so much money thrown away.

Training in Textile Industry

Fortunately we are not in the dark here, for foremen training has been operating long enough to have statistics of foremen study. The following records are taken from textile mills where foremen training has been used successfully, and shows how high a percentage of the men actually buckle down and study and follow a course through to completion:

	No. of men who enrolled	No. of men who finished	Percentage of men who finished
Arnold Print Works, North Adams, Mass.	111	101	91%
Carolina Cotton & Woolen Mills Co., Inc., Spray, N. C.	176	154	87%
Crawshaw Carpet Co., Newburgh, N. Y.	14	14	100%
Dixie Mercerizing Co., Chattanooga, Tenn.	14	13	92%
Erwin Cotton Mills Co., Duke, Cooleemee, and W. Durham, N. C.	85	83	98%
Fitchburg Yarn Co., Fitchburg, Mass.	15	13	86%
Imperial Cotton Co., Ltd., Hamilton, Ont., Can.	22	20	90%
Indianapolis Bleaching Co., Indianapolis, Ind.	20	20	100%
Jewell Cotton Mills, Thomasville, Ga.	13	11	84%
Palmer Brothers Co., New London, Conn.	20	18	90%
Parkhill Mfg. Co., Fitchburg, Mass.	24	23	95%
Peerless Woolen Mills, Rossville, Ga.	17	17	100%
Spray Cotton Mills, Spray, N. C.	12	12	100%
Des Moines Hosiery Co., Des Moines, Iowa	26	26	100%
Durham Hosiery Mills, Durham, N. C.	72	62	86%
High Rock Knitting Co., Philmont, N. Y.	37	32	86%
Paramount Knitting Co., Kankakee, Ill., Beaver Dam, and Waupun, Wis.	99	90	89%
Richmond Hosiery Mills, Rossville, Ga.	45	39	86%

The plan of training used in the eighteen plants named above requires the study and mastery of six textbooks; therefore the completion records are definite evidence of study on the part of foremen. Of course, study is not an end in itself; but if I am to judge by what textile executives in every line of the industry tell me, it is a very significant thing in foremen. The fact that foremen have been interested enough in the specialized craft of foremanship to study its principles and methods, and apply themselves specifically to master its fundamentals, is an important index to the attitude and type of mind of the foremen.

Not only has foremen training succeeded in interesting foremen in the fundamentals of their job, and in getting them to study its principles and methods, but it has given such a direction to this interest that invariably the foremen ask for some form of continuation work. It is the usual

* Vice-President, Business Training Corporation.

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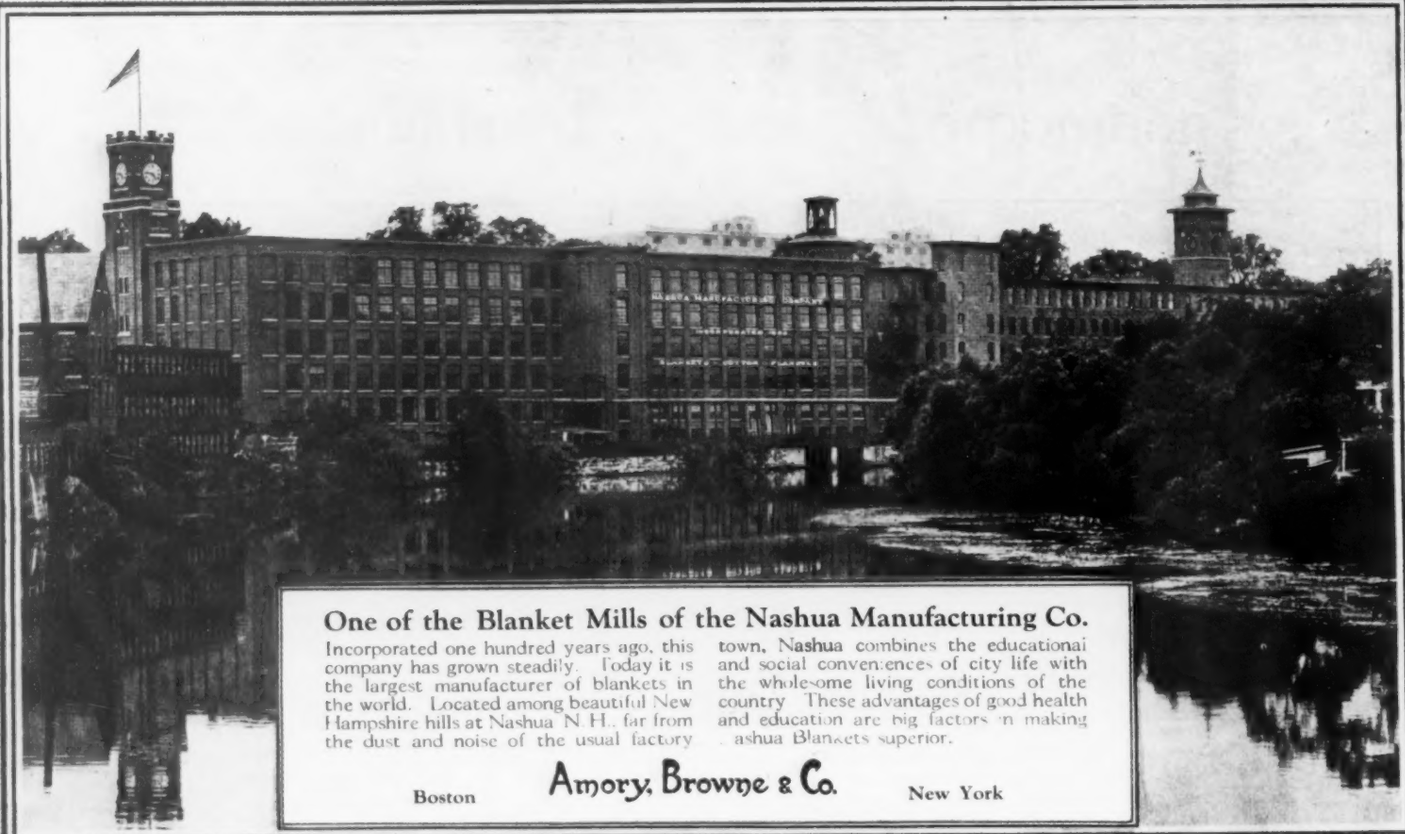

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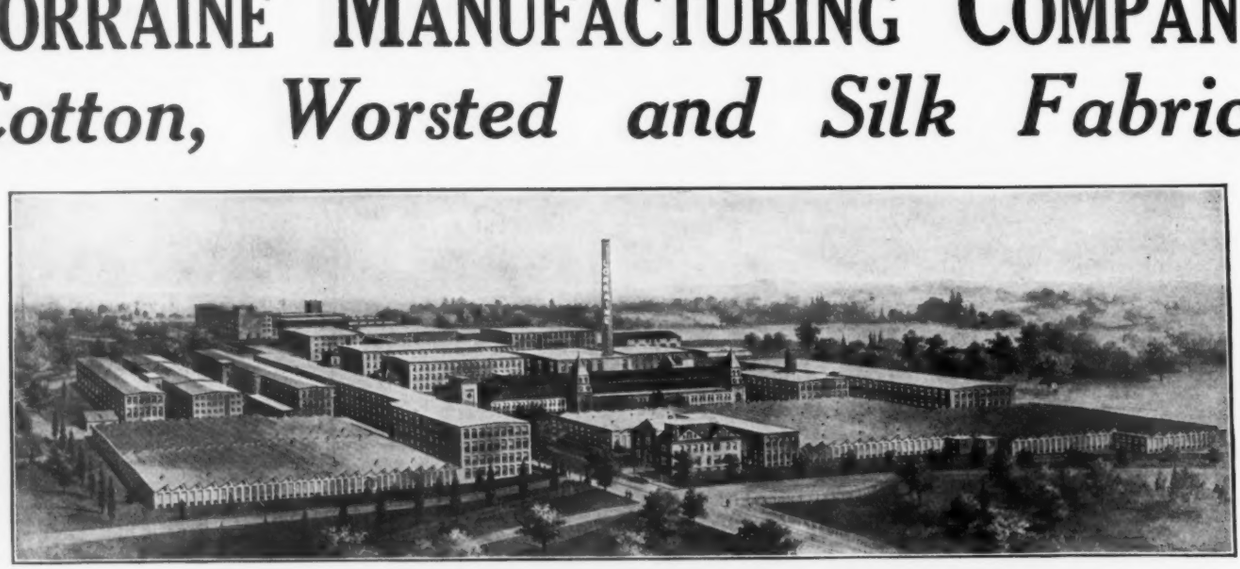

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Changes in Yarn Situation Radical During 1922

From a Condition of Losses to the Spinner the Market Has Turned to a Satisfactory Position Statistically and to the Possibility of a Fair Margin of Profit—Certain Consuming Trades Prove Small Buyers With General Improvement at End of Year—Outlook for Higher Levels on Cotton and Yarn

THE cotton yarn market for the year 1922, viewed from the standpoint of the spinner, divides itself into two diametrically opposite periods, which also divide the year almost exactly in half. The first six months comprehended a period when the margin of profit to the spinner was reduced almost to the vanishing point and in many instances to a minus quantity. While even at the beginning of the year predictions of higher levels for cotton were freely made, it appeared to be impossible for spinners to secure an advance on their product commensurate with any idea of material increase in raw cotton. At that time the market for the latter was practically at 18 cents and buyers were ridiculing the thought expressed generally in the South that the staple would go to 20 cents. As one looks back over the year it is hard to appreciate why buyers could have been so obtuse and unwilling to take a broad view of the situation and its possibilities for higher prices.

Buyers Buck the Market

Nevertheless the course pursued by the consumers of yarns has worked out to their advantage, at least to a certain degree. They were able to keep the market down to a lower level than was warranted by the advancing tendency of cotton and were also able to provide for a certain amount of their season's requirements at what now appear to have been very low prices. On the other hand this advantage has been offset by the necessity of liberal buying to cover needs for the latter part of the year and for a considerable period in the current year. The result has been that this demand has been largely instrumental in putting up prices and enabling the spinner to change from a condition of unsatisfactory trading to one where profits have become approximately normal, if such an expression can be used for a period of reconstruction when the basis for calculation had to be with pre-war years.

Conditions Induce Speculation

The word speculation in the yarn market is more or less taboo among the majority of dealers who contend that purchase of yarn from the spinner with the view of holding for a higher price is necessary under the existing methods of conducting the yarn business. Nevertheless, while it is necessary for dealers to buy and hold yarn for the requirements of their customers, these purchases produce a speculative tendency that may, and ofttimes do, result in disaster to the trader. While the year has not been marked by any prolonged periods of uncertainty as to the profits to be secured on yarn held by the dealer, yet operations with Southern mills at the beginning of 1922, on a fairly extensive scale, made it necessary to hold these stocks for a decided length of time in order to realize even cost. Probably the most effective reason for bringing about a condition where the dealer could make a profit on his holdings was the determination of spinners in February and March to hold for a price which would show a profit. Combined with this was the knowledge on the part of the spinner that more or less short sales had been made and that it would be necessary for the dealer to cover these. The consequence was that the market advanced and while those who had sold short were obliged to pay more than they had contracted for with the consumer, yet on the stock in hand it was possible to realize an advance and so recoup any losses that might have been made on a weak or declining market.

Variation in Prices

This method of procedure on the part of dealers has resulted during the year in a decided discrepancy between the prices asked by the spinner and those at which the dealer would dispose of yarn. For the most part, the spinner's price has been above the market, for since March, with a constantly upward tendency to prices of raw material, with few exceptions there has been the necessity of advancing prices on yarn. The dealer has taken advantage of the few dips that have occurred to place orders for considerable quantities with the spinner and consequently has been able to offer material to the consumer at lower figures than could be obtained on yarn to be spun. In October and November particularly, reports of large purchases by prominent dealers from spinners were generally current. While the reported aggregate of these purchases may have been exaggerated, yet it is known that in many instances the product of mills was sold well into 1923, which was proof positive that the dealer had contracted for liberal quantities and was holding for an advance. This expected development took place very shortly, with the result that stocks in dealers' hands were decidedly depleted by the end of the year and as a consequence the spread between spinners' quotations and those of the dealer was lessened materially. Again, however, the upward course of cotton produced firmer ideas on the part of the spinner, especially because of his favorable statistical position, and in many instances quotations have lately been named that showed a wider difference from the dealers' level than in many months.

A good many trades, usually large buyers of cotton yarns, have not had the satisfactory business during the year to warrant continued operations, and as a consequence business has been spotty. It has been possible, however, to offset the decline in one or more divisions of the consuming industry by increased operations in others, so that the aggregate volume of business has been satisfactory from the dealers' standpoint and the comparatively well-sold condition of spinning mills reflects this condition. Also a good many trades which dragged throughout the year showed a decided tendency to improve at its end and contrary to expectation considerable anticipation of future requirements was noted at the close of 1922, as opposed to the usual procedure of delay until inventories are out of the way.

The webbing trade is a pertinent illustration of the above condition. Webbing manufacturers during most of 1922 were most conservative operators. Conditions in their own lines were unsatisfactory and it was impossible to operate at anything like normal capacity. With the beginning of this year, however, a decided improvement is noted and recent inquiries indicate the prospect of a much more satisfactory year. The wire trade has maintained its reputation as shrewd and careful purchasers of yarns. Its purchases have been made at times when the market was to the buyer's advantage and a profit has been witnessed on practically all of the contracts placed. This trade is also recognized as very close buyers and competition has had to be on a low basis in order to secure the business passing. Direct sellers have benefited by being able to quote low figures on a large production to the detriment of the ordinary dealer or commission house. Towel mills in the Philadelphia section have been disappointingly inactive during much of the year and their inability to sell a fairly large accumulation of stock has prevented their entrance into the market for liberal quantities of yarn. These varied conditions in the consuming trades had their effect on specific counts and produced a see-saw situation that has changed the statistical condition on various numbers from one of large stocks to comparative scarcity and to higher prices.

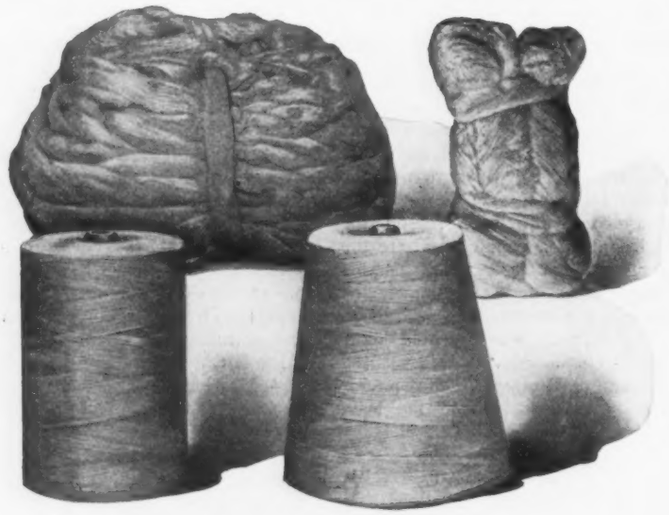
Knitting Yarns Anomalous

It is somewhat difficult to give a reason for the relatively low prices of knitting yarns as compared with weaving qualities during the majority of the year. While this disparity is not as great today as it was during the Fall months of 1922 yet the level of prices in this division of the market still falls considerably below the average in weaving yarns, with the prediction that increases must take place in the near future in order to put these yarns more on a parity with those which enter into the manufacture of woven fabrics. Considerable might be said of the comparative ability of underwear manufacturers as buyers of yarn, for they have certainly been able to secure a goodly proportion of their requirements at lower figures than the spinner feels were warranted by conditions. With underwear mills especially there has been a disposition to gamble on the yarn market and to buy only a moderate proportion of their needs for the year. Doubtless these buyers were enabled through careful operations to secure a very low level for at least half of their requirements for the present season. But they banked on obtaining the rest of their yarn supplies on the same basis and in this they were disappointed. On a basis of 29 cents for 10s in the early part of the year 1923 the market looked cheap and a fairly large volume of trade was done. This count has advanced to 42 cents at the present time while 22s are quoted at 46 cents. On the latter count buyers hoped to obtain their year's supply in the neighborhood of 32 cents, and while securing a fair quantity at or below this figure, where they have purchased to cover their sales of products during the last few months of the year or since the opening of 1923, they have had to pay decidedly more than they had anticipated.

It is possible today that certain knitters of underwear have not covered their requirements for the entire season, which may be the reason why jobbers have intimated that spinners have cancelled contracts for yarn and that underwear manufacturers will not deliver. Another cause for this intimation on the part of the jobber may be the fact that certain dealers during the last three months of the year 1922 sold the market short and have not made deliveries to their customers because of their inability to cover with the spinner. The reason for low prices quoted by competitors was hard to determine a few months ago, but it would seem as though this matter of short selling on the part of dealers was a plausible explanation for the quotations reported. The outlook in knitting yarns from the spinners' standpoint seems fairly satisfactory in view of the fact that the majority are well sold ahead. Knitting yarn mills that have not contracted for their product well into next Summer are few and far between and in the few instances their product is under order until next September.

Outlook for Future

As far as 1923 is concerned the



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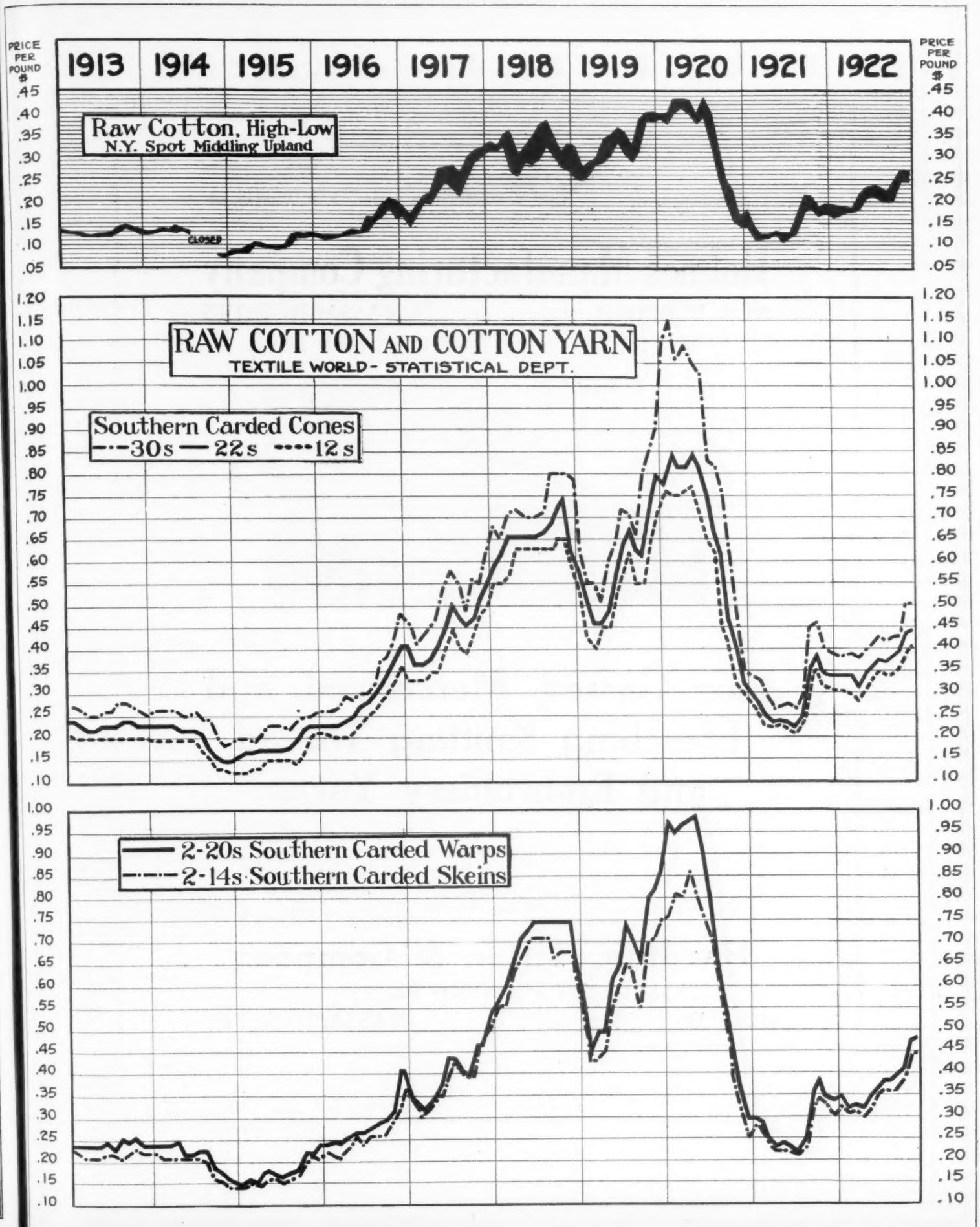
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belief of spinners and of dealers is that the experience of the first half of 1922 is not likely to be repeated, but that a fairly free volume of business is to be expected and at prices which will net a fair return to the spinner. The Southerner looks forward to continued high prices for cotton and in instances is prophesying an elevation of the market that may be unprecedented. It is appreciated that such an increase is fraught with considerable danger and may result in a restriction of demand from the consumer that may bring disastrous consequences in its wake. At the same time they can see little evidence of weakness, at least before the new crop appears, and look for a reflection of raw material firmness in the yarn market and for margins of profit that will compare very favorably with 1922, inasmuch as the majority are fairly well supplied with raw material below the present level. It is true that prices of much of the cotton contracted for have not been settled, and this element of speculation may be one of the causes why prices today are so high. The settlement of this matter, however, would not seem to reflect possibilities of material decline and all things considered, the basis for predicting an upward tendency in cotton and yarns seems to be well founded.

Combed Yarn Outlook Brighter

A Crab-Like Price and Sales Movement During 1922—Shift of Tire Trade to Carded Yarns Largely Responsible

THE movement of combed yarn prices and business volume during 1922 approximated in direction that of the crab—sideways. The trends have been the same as on carded yarns, and the downward swing during the first six months was fully proportional to that of carded yarn prices, but on every advance combed yarns have lagged far behind carded both in price and volume of sales.

Two factors were primarily responsible for this unsatisfactory situation, and their influence is still felt in a gradually decreasing proportion: One was the diversion of tire cord and fabric demand from combed to carded yarns, thus leaving combed yarn production considerably in excess of current consumption; the other was the relatively low price of extra staple cottons, thus withholding from combed and fine count yarns the full price support and advancing stimulus that has been such a powerful influence in stimulating a steadily expanding demand and rising prices for carded yarns.

The Tire Yarn Vacuum

It is not so much the switching of tire yarn demand from combed to carded that has been most responsible for the disorganization of this market as it was the abnormal increase in productive capacity that was stimulated during 1919-20 by the wild and unwarranted demand from tire manufacturers. The extent of this expansion is problematical so far as sales yarn mills is concerned, but a minimum estimate of the present unfilled vacuum is not far from 50,000,000 pounds annually, including expanded yarn production of tire cloth and other weaving mills that have been competing with sales yarn mills. A considerable amount of the machinery in sales yarn mills specializing on combed yarns has, it is true, been operated in completing old tire yarn contracts, but it is carded yarns that have been delivered on most of these old contracts and a proportional amount of the combing machinery has stood idle. Furthermore, with the completion of tire yarn contracts a steadily increasing production of combed yarn has become available. At the close of the year it was decidedly problematical as to when and in what volume new demand for tire yarns would develop, but it was reasonably certain that regular spinners of carded yarns were so well sold ahead that a considerable portion of any such prospective demand would have to be filled by combed yarn mills. That is today one of the most hopeful possibilities of the combed yarn market, and developments during January indicate that it is a strong probability. Distribute 25,000,000 or so pounds of carded 23s among combed sales yarn mills and it will go a long way toward forming a basis of resistance to depressive influences and of higher prices for their combed product

Effect of Cheap Staple Cottons

Middling Uplands cotton has advanced approximately 163 per cent. from the low of 1921, while domestic extra staple cottons of 1 3/16 inches and longer have advanced an average of about 75 per cent. This is primarily due to the fact that world production of long staples was more nearly normal last year than that of the shorter cottons, but also to the fact that the consuming demand for products requiring the use of long staples has expanded less than that utilizing ordinary cotton. Here again we come upon the unsettling influence of the unbalanced tire industry; the latter's switch from combed to carded yarns has released for other uses approximately 300,000 bales (500 lbs. each) of staples longer than 1⅛ inches, and although this includes both Egyptian and domestic long staples it is sufficient to prevent prices of such cottons from advancing anywhere near in proportion to Middling Uplands.

A Few Encouraging Features

One of the most encouraging features of the combed yarn market at the close of the year was the evidence of a steadily expanding demand from the knit goods trade. This included both mercerized yarns and medium and coarse count gray yarns. Fine count lisles are also being taken more freely by hosiery mills. The upholstery trade is also evidencing more interest in both mercerized and gray yarns, principally in medium and coarse counts. Thread converters and the wire covering trades have been spasmodic buyers of combed yarns during the year, but this aggregate consumption has been nearly normal.

The complaints of northern mercerizers and combed yarn spinners of keen competition and low prices are traceable in large part to the expanded production and competition of southern producers. Selling a product that meets the requirements of a very large proportion of consumers at prices that average 5 to 10 per cent. below competing northern yarns the southern mills are corralling a steadily increasing proportion of the total volume of business. Southern producers of high grade combed and mercerized yarns have suffered relatively as much as northern mills from the comparatively small demand for high quality goods requiring the choicest yarns. Expansion of such demand may be confidently expected during 1923 with an accompanying widening of the profit margin on such yarns.

At the close of the year prices of fine count yarns were substantially the same as at the opening, while medium and coarse count singles had advanced about 20 per cent. This compares with average advances during the year in carded yarns of medium and coarse count averaging about 33⅓ per cent. The disparity in the present price position of both classes of yarns is seen to be much greater when comparison is made with advances from the lows of 1921. The average advance in fine count yarns is but a little over 40 per cent. while that in medium and coarse count combed yarns is about 45 per cent.

Raw Cotton Supply Worries Trade

Uneasiness Over World Crop is the Outstanding Feature of Year 1922 in Cotton Field

THE outstanding feature of the year 1922 in the cotton trade was the world's growing uneasiness over the question of adequate supplies for the future if not for the more immediate present. This was coupled with doubt regarding the world's ability to buy as much cotton goods as used to be considered necessary and, as a consequence, with the addition of every cent to the price, there was a tendency to wait for the effects on consumption. Naturally enough this has led to frequent and in some instances substantial reactions, but the supply situation has dominated and prices at the end of the year were approximately 11 cents per pound above the low figures of the preceding January, with the trade evidently convinced that no return of low-priced cotton could be expected until foreign fields had been developed or the boll weevil conquered.

Broadly speaking, there were six distinct price movements during the year. It may be recalled that rather an optimistic feeling had developed toward the close of 1921 owing to evidences of improving conditions abroad, and at the beginning of 1922, prices were around the 19-cent level in the New York market. Trade improvement developed less rapidly than expected, and people who had bought on the optimistic views of the late old year, turned sellers early in January, causing a break of approximately 3 cents per pound to about the 16-cent level before the first of February. This proved the lowest price of the year. The decline was checked by the development of an increased export demand and the advance of over 7 cents per pound which followed was stimulated by reports of a poor start with the new crop and apprehensions that the unusually heavy emergence of boll weevil from hibernation, would mean corresponding damage later in the season. This advance culminated on the publication of the end-June acreage and condition figures at the beginning of July with October selling at 23.26.

Crop Indications

At that time, the crop indication pointed to a yield of about 11,065,000 bales according to the report of the Department of Agriculture issued on July 3. Reactions followed under realizing or liquidation and some selling was probably inspired by reports of rather more favorable crop progress, a continuance of the labor disputes in New England mills and a disposition to discount the probable effects of early new crop receipts. As expected, the end-July crop figures showed some increase in the yield indication, placing the probability at 11,449,000 bales, but reports of deterioration began to reach the trade early in August and after selling off to about the 27-cent level on Aug. 9, the market again turned upwards.

This advance was stimulated by a steady scaling-down of crop estimates to 10,125,000 bales by the end of September and also by the development of a very active spot demand during September and October. There still appeared to be a lingering hope that the crop was being under-estimated, however, and after selling above 26 cents early in November, the market reacted under another wave of realizing or liquidation in advance of the Government's December estimate of the crop. By Dec. 5 the market was about 2½ cents off from the best or around the 24½-cent level, but the Government estimate reducing crop figures to 9,964,000 bales and the ab-

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sorption of early new crop receipts by the buying movement of the earlier autumn, combined with the increasing activity of domestic mills started another upturn before the holidays which carried prices up to approximately the 27-cent level or something like 11 cents per pound above the low prices of the year.

Effect of Boll Weevil

The uncertainties of American production arise largely, of course, from the spread of the boll weevil and its increased destructiveness in Eastern States as compared with the Southwest. Apprehensions of this sort had been created by the tendency toward diminishing yields per acre previously noted. The unsatisfactory outturn of the crop planted in the spring of 1922, however, made a particularly strong impression on sentiment. It was realized that the South was making an effort to produce an increased crop owing to the higher level of prices. The acreage was increased; more fertilizers were purchased; and more labor was employed in cultivation. There was doubtless a hope that the poor results obtained from previous plantings since 1914 had been due to first one and then another unfavorable feature such as shortage of fertilizer during the war, unfavorable weather or various other more or less temporary conditions.

The bulge in the yield per acre shown by the crop of 1920 rather tended to encourage such opinions, but with each succeeding short crop, the seriousness of the boll weevil situation became more widely recognized, and was brought to the point of acute apprehension by the unsatisfactory results of the South's latest effort. Notwithstanding these efforts as outlined above, the yield per acre as indicated by the final estimates of production, is turning out the lightest for any of the past five years with the exception of 1921.

Under these circumstances, the responsibility is placed very largely upon the boll weevil. All sorts of calculations including some very elaborate compilations have been worked out with a view to showing the extent of the damage which has been done by this insect. In all probability, however, nothing can be found to tell the story much more clearly than the following comparisons of yields per acre for five years preceding the war and the last five-year period, in which the yield of 1922 is based upon the Government's December estimate of the crop:

Growth of	Planted acreage	Lint yield	Average yield per acre
1910	33,418,000	11,608,616	170.7
1911	36,681,000	15,692,701	207.7
1912	34,766,000	13,703,421	190.9
1913	37,458,000	14,156,486	182.0
1914	37,406,000	16,134,930	209.2
Five-year average	14,259,231		192.1
1918	37,207,000	12,040,532	159.6
1919	35,133,000	11,420,763	161.5
1920	37,043,000	13,439,603	178.4
1921	31,678,000	7,953,641	124.5
*1922	34,852,000	9,964,000	133.8
Five-year average	10,963,707		151.5

* Government's preliminary estimate.

It is hardly to be supposed that a five year record such as this can reflect persistently great differences in average growing conditions, and the fall of 41 pounds per acre in the average yield for the last five years as compared with the five pre-war years, must be attributed to the weevil or to faults in cultivation and the weevil combined. Possibly fertilizers have not been used sufficiently since the beginning of the war and it is also possible that in some sections of the belt where their use has not yet become general, they are beginning to be more urgently needed. The great bulk of the loss, however, must be due to the boll weevil.

Statistical Position

The need for a greatly increased crop is very clearly shown by the changes which have occurred in the statistical position as a result of the short yields of 1921 and 1922. The following figures have been compiled with a view to showing just what has occurred in this respect since the end of July, 1921. The figures in this table are compiled from reports of the Census Bureau, or estimated on the basis of Census Bureau reports except for the figures of this year's crop which are based on the estimates of the Department of Agriculture. As the final or revised figures of the Census Bureau on supply and distribution for last year are not yet available, the totals given are subject to slight corrections. The figures apply, of course, to supplies in the United States:

Stocks July 31:	1922-23	1921-22
In mills, lint	1,220,000	1,111,000
In public storage, lint	1,487,000	3,723,000
Elsewhere, lint	125,000	1,700,000
Total lint	2,832,000	6,534,000
Linters, stocks	332,000	696,000
Total lint and linters	3,164,000	7,230,000
Growth of season lint	9,964,000	7,978,000
Growth of season linters*	500,000	398,000
City crop less destroyed*	120,000	17,000
Imports*	350,000	364,000
Total for season	14,098,000	15,987,000
Distributed:		
Consumed to Dec. 31, lint	2,622,000	2,485,000
Consumed to Dec. 31, linters	288,000	285,000
	2,910,000	2,770,000
Exported lint & linters	2,906,000	3,108,000
Distribution for five months	5,816,000	5,878,000
Indicated available Jan. 1	8,182,000	10,109,000
Distribution after Jan. 1:		
Domestic consumption	3,736,000	
Exports	3,209,000	
7 mo. distributions	6,945,000	
On hand end season	3,164,000	

It may be noted from the above that if domestic mill consumption continues at the present rate it will dispose of about 4,000,000 bales during the remaining seven months of the season, and if we accept a total of 1,750,000 bales as minimum for end-season stocks at the mills and other points in this country, we shall have only 2,432,000 bales to export between the beginning of January and the end of August compared with actual exports of 3,209,000 bales for that period last year.

World Figures

Turning from the statistical position in this country as the most important source of supplies, to the broader question of the world's situation, there appears to be no more authoritative data available than the estimates recently published by the Department of Commerce. These are given below, although, of course, they are subject to considerable modification as to the figures on consumption, at any rate.

	American	All kinds
Stocks Aug. 1, 1921	9,351,000	14,752,000
Production (commercial cotton)	7,954,000	14,741,000
	17,305,000	29,493,000
Consumption	12,293,000	20,047,000
Stocks July 31, 1922	5,012,000	9,446,000
Production, 1922	10,135,000	16,750,000
	15,147,000	26,196,000
Probable consumption of	12,293,000	20,047,000
Would leave world's stocks on July 31, 1923, of only	2,854,000	6,149,000

Since these figures were compiled the estimate of the American crop has been reduced somewhat. On the other hand, it may be doubted whether the world's consumption of American cotton will equal that of last year in view of the increased substitution of other growths, the recent depression in Lancashire, the falling off in shipments to Japan, the political troubles in China and the chaotic conditions prevailing on the Continent.

In any event, and whatever the end-season statistical position may be, the maintenance of prevailing prices will depend upon common crop prospects as they develop. Stocks of goods as a worldwide proposition however, are undoubtedly at what may be referred to as an "irreducible minimum" and broadly speaking the cotton trade, as it enters the year 1923, can look forward, either to a continuation of very high prices in the event of another short crop or to a world-wide demand to replenish reserves at anything like fairly reasonable prices should the cotton be available.

Efforts to Increase Crop

Meanwhile reports from practically all over the world indicate an effort to increase the production of cotton wherever possible, and a continuance of small American crops with present price levels, would doubtless stimulate the movement. Great Britain, of course, is particularly active in this direction, not only through her encouragement of the Empire Cotton Growing Committee's activities, but by her attitude toward production in other countries such as Brazil. A delegation of British cotton experts have recent-

RAW COTTON STATISTICS FOR 1922

January:	1922.	1921.	1920.	1919.
May contracts, New York	18.72-15.80	16.53-13.80	35.65-33.55	27.50-20.00
Domestic consumption, lint	526,552	366,463	591,921	556,883
Exports, lint and linters	475,910	605,381	929,671	658,143
Ginned to January 1	7,882,356	11,554,648	10,008,920	10,773,863
Ginned to January 16	7,912,452	12,014,742	10,307,120	11,048,652
February:				
May contracts, New York	18.46-16.15	14.59-11.25	35,32-31.50	22.92-19.50
Domestic consumption, lint	473,073	395,115	515,699	433,295
Exports, lint and linters	338,440	493,426	640,320	449,523
March:				
May contracts, New York	18.23-17.50	12.83-11.12	39.80-34.60	25.26-21.75
Domestic consumption, lint	518,450	438,218	575,789	433,485
Exports, lint and linters	461,484	375,180	794,460	504,239
Final ginning report	7,977,778	13,270,970	11,325,532	11,906,480
April:				
May contracts, New York	18.28-17.60	12.31-11.30	42.50-39.60	28.90-25.00
Domestic consumption, lint	446,843	409,247	566,914	475,875
Exports, lint and linters	612,659	319,933	546,125	411,916
May:				
May contracts, New York	21.65-18.26	12.98-12.02	42.98-38.80	31.00-27.68
Domestic consumption, lint	495,674	440,714	541,377	487,931
Exports, lint and linters	469,397	477,389	364,904	444,718
June:				
July contracts, New York	22.95-20.15	12.97-10.45	38.90-35.25	34.40-28.55
Domestic consumption, lint	507,869	461,917	555,155	474,330
Exports, lint and linters	491,079	495,474	241,449	690,169
"End-May" crop condition	69.6	66.0	62.4	75.6
July:				
July contracts, New York	23.25-20.92	12.52-11.30	43.75-38.00	39.95-32.93
Domestic consumption, lint	458,548	410,142	525,489	510,328
Exports, lint and linters	373,742	598,962	211,841	528,902
"End-June" condition	71.2	69.2	70.7	70.0
Acreage planted	34,852,000	31,678,000	37,043,000	35,133,000
Indicated crop new season	11,065,000	8,433,000	11,450,000	10,986,000
Commercial crop of old season	11,653,000	11,377,000	12,443,000	11,640,000
World's carry-over of American	4,904,000	9,364,000	6,216,000	6,824,000
Carry-over of Amer. in U. S.	2,955,000	7,039,000	4,448,000	5,291,000
August:				
October contracts, New York	23.00-20.00	16.63-12.69	32.65-25.68	35.50-29.75
Domestic consumption, lint	527,404	467,059	483,560	497,319
Exports, lints and linter	273,308	423,491	146,668	479,058
"End-July" condition	70.7	64.7	74.1	67.1
Indicated crop	11,449,000	8,203,000	12,519,000	11,016,000
September:				
October contracts, New York	22.56-22.00	21.50-15.97	29.60-23.45	32.60-27.95
Domestic consumption, lint	495,344	484,718	457,967	491,069
Exports, lint and linters	368,890	532,839	228,068	236,694
Ginned to September 1	806,218	485,787	351,589	138,993
Ginned to September 25	3,883,006	2,920,392	2,249,606	1,837,708
"End-August" condition	57.0	49.3	65.7	61.4
Indicated crop	10,575,000	7,037,000	12,783,000	11,231,000
October:				
December contracts, New York	24.55-20.50	21.95-17.93	22.90-17.80	37.00-30.60
Domestic consumption, lint	533,950	494,317	401,325	556,041
Exports, lint and linters	798,664	874,510	583,725	352,231
"End-September" condition	50.0	42.2	59.1	54.4
Indicated crop	10,135,000	6,537,000	12,123,000	10,696,000
Ginned to October 18	6,981,000	5,497,364	5,754,582	4,929,194
November:				
December contracts, New York	26.80-24.77	18.50-16.15	22.70-14.86	38.50-35.00
Domestic consumption, lint	577,561	526,610	332,712	491,250
Exports, lint and linters	858,337	648,695	683,323	924,751
Ginned to November 1	8,146,227	6,646,354	7,508,633	6,305,054
Ginned to November 14	8,875,840	7,274,201	8,914,642	7,604,320
December:				
December contracts, New York	26.20-24.05	19.06-16.80	16.45-13.85	40.00-35.95
Domestic consumption, lint	527,945	510,925	295,292	511,711
Exports, lint and linters	607,853	639,825	788,578	876,843
Ginned to December 1	9,323,307	7,639,961	10,141,293	8,844,368
Ginned to December 13	9,493,296	7,790,656	10,876,263	9,296,646
Government crop estimate	9,964,000	8,340,000	12,987,000	11,030,000

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Ethel Cotton Mills	Selma, N. C.
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Jewel Cotton Mills	Thomasville, N. C.
Johnston Mfg. Co.	Charlotte, N. C.
Norcott Mills Co.	Concord, N. C.
Park Yarn Mills Co	King's Mountain, N. C.
Roberta Mfg. Co.	Concord, N. C.
Ronda Cotton Mills, Inc	Ronda, N. C.
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ly been investigating conditions in Australia and report that cotton can be produced on a considerable scale in Queensland. It is reported that yields per acre over the harvest season of from five to eight months in that country is more than the average yield in the United States and that the producing area can be very considerably extended.

The Australian crop for this year will probably be between 50,000 and 60,000 bales, and next year it is thought possible to increase it to nearly 250,000 bales. The greatest possible precautions are being taken to guard it against the introduction of the boll weevil. The possibilities of increasing the production in the Sudan are also being discussed and it is reported that the British Government is undertaking the extension of the Sudan Railway in order to open up this territory. Older countries in cotton production can hardly fail to feel the stimulus of the higher prices.

The fact remains, however, that in all these foreign fields there are obstacles to be overcome in the shape of labor, transportation or climatic limitations, and perhaps the most promising field for immediate expansion is in the Southwestern part of this country where the boll weevil is less destructive than in the eastern states, and large areas of land can be brought under cultivation if the state of the market warrants the initial investments of capital and labor.

Staple Cottons Do Not Share Advance

Premium Differences Narrowed—Poor Demand for Better Grades and Extra Staples

MEMPHIS, TENN.

COTTON measuring ¾ to 1 1/16 inches in length closed the calendar year at best prices since the big break in values two years ago. Staple cotton quotations reflected the price movement in upland grades with fair consistency during the first eight months of the year, but since October 1 premium differences not only have narrowed but, compared with the year's best prices, actually declined while short cottons were exhibiting their strongest advance. Middling cotton shows a net advance of a little more than $40 a bale on the year; staples are about net unchanged but $15 to $30 a bale under prices obtaining at midsummer on grades of strict middling and lengths above commercial 1⅛ inches. Middling cotton was quoted here on January 1 at 26.75 cents, against 18.50 the previous year and 14.00 the year before. The price at Dallas, Texas, was 25.80, against 18.20 the previous year, and 12.10 the year before. The highest price mentioned as having been paid for cotton in Memphis territory during the calendar year was 44.00 cents for good middling 1¼ to 1 5/16 staples; that sale was made early in the year; just as good cotton is still to be found in the hands of Memphis factors and is purchasable at a price not exceeding 39.00 cents a pound and in some instances as low as 36.00 cents. At the same time it is doubtful if any cotton suitable for spinning can be bought on the present market at a price of much less than 25 cents a pound.

The year is remarkable for the narrowing of discount differences and shrinkage of premiums; for keen, almost insatiable demand for low grade uplands, creeks and rivers, and sluggish demand for the better grades and the extra staples. This condition became more pronounced as the year advanced.

A recent statement of the Staple Cotton Co-operative Association shows that nearly 57,000 bales were sold to January 1, and that the average price of strict middling 1⅛ to 1 3/16 staples, f. o. b. delta compress points, was 30½ cents, and of strict middling 1 3/16 to 1¼ staples 35⅛ cents.

Last year the first 40,000 bales sold by the association, according to official statement, netted the grower an average of 35⅛ cents. This comparison is but further evidence of the decline in staple values while uplands were advancing nearly 50 per cent. The comparison with middling uplands does not tell the whole story because grades below middling advanced relatively more than middling and above. The average price of middling uplands at Memphis during preceding statistical years was as follows: 18.12 cents, 1921-22; 15.15 cents, 1920-21; 39.26 cents, 1919-20; 28.97 cents, 1918-19; 30.63 cents, 1917-18; 19.32 cents, 1916-17; 12.00 cents, 1915-16; 7.82 cents, 1914-15, and 13.40 cents, 1913-14.

Price Movement Remarkable

The price movement in spot cotton in 1922, considered in connection with underlying causes, was not less remarkable than that of 1919, although in a different way. The unprecedented advance in high grade extra staples, to the neglect of low grades, three years ago, was brought about by grade scarcity due to natural and artificial causes. Owners of cotton were later on smothered under an avalanche of over-supplies, because the advance was made in defiance of the fact that total supplies, including low grades suitable for spinning, were largely in excess of current requirements. Now there is no burdensome supply of American cotton of any kind. Staples are neglected but, when considered in connection with the supply as a whole, the total in comparison with present and prospective requirements, the probability of a further reduction of at least 1,500,000 bales in the carry-over by July 31, 1923, is suggested.

The feeling among southern growers, merchants and bankers now is that cotton values during the year just ended, contrary to the advance which began in 1919, were on a sound basis, and will not be the occasion of future regrets. The narrowing of discount differences almost to the point of extinction, is not ascribed by the trade here to grade scarcity brought about by neglect of the better grades, but to general scarcity, which later on, it is believed, will be reflected in an advance in the prices of extra staples. Fact that staples are lagging, it is the consensus of opinion here, is due to lack of Liverpool participation except upon a very small scale.

New England demand was been somewhat disappointing, but southern mill buying of low grades has been unusually active. Undeniably, however, demand in general has been running to lower grades and shorter cotton; at the same time production, the trend stimulated by the memory of dollar cotton, high priced lands still unpaid for, and other obligations contracted during a period of false prosperity, induced also by "better farming" propaganda and persuasive literature put out by seedsmen, has been running to better grades and longer lint; a favorable picking season and early harvest together with relatively good yields per acre in the chief staple producing areas were important factors in determining the quality of the crop.

Narrowing of Discount Differences

The extent to which discount differences narrowed was even more remarkable than the shrinkage of premiums. Men long in the trade say they never before saw anything like it and are frankly puzzled. Creeks and rivers have found ready sale throughout the season, with uplands seldom lagging, and grades a matter of secondary consideration. Throughout the new crop year, but notably during the closing months of the calendar year, buyers appeared willing to pay about as much for low grades as for the better ones, the main idea apparently being to obtain cotton of good spinning value at a cost not exceeding 26 or 27 cents a pound.

Cottons of every description sagged in value through the months of January and February, and it was not until May that price levels held during the first week in January were regained. The dip which touched bottom early in February represented a decline of about 150 points from the close of the previous year. A number of causes contributed to the setback; many tired holders were disappointed and reached the conclusion that nothing could be gained, for several months at least, in holding on; buying came in spurts and was mostly of a speculative character and was not sustained; banking developments and business failures were discouraging; there was need of funds for making the new crop, and many feared the market effect of an increased acreage which early preparations indicated to be a certainty; partly as a matter of habit, a decline in January and February was accepted as seasonal and inevitable, and, it may be as a result, there was the depressing effect of southern hedge selling of contracts against the actual which had been carried up to that time without hedges. Demand early in the year turned to the low grades giving rise to conjecture that a large short interest existed in these grades.

A moderate recovery occurred during March under the influence of slightly improved demand, but during April values turned soft again and dipped to a level with the year's low.

Tendency, about May 1, of prices to advance was traceable to the poor start of the crop in many sections, particularly in the Atlantics and in Texas. Early in July middling uplands, by easy stages and few setbacks, had reached a value of 23 cents a pound. Staples reached peak values at about the middle of June with strict middling 1⅛ staples selling as high as 34 cents. During or about that time some shippers who had sold short upon the supposition that premium difference would narrow had occasion to do some worrying, but their judgment was afterwards amply vindicated. From June to the end of the year the trend of staples values was downward relatively, although with only a feeble rally now and then to relieve the monotony.

During the early summer months, and until about August 1, prices were firm, notwithstanding a very inactive market. Firmness was attributable largely to the attitude of persons financially able to carry their holdings of cotton indefinitely, and who then held it at prices above the market. This, quite naturally, restricted business; buyers claimed that their limits were such that their hands were tied.

Statistics

The carry-over at Memphis amounted to 62,188 bales in the total stock on July 31, against 255,927 the previous year and 258,608 the year before. From August 1 to January 1 net receipts totalled 295,955 bales; gross receipts 737,335 bales; shipments 612,647; the total stock on January 1 was 186,876 bales, of which approximately 85,000 bales remained unsold in hands of Memphis factors, about half as much as was unsold at the corresponding date the previous year, and one-third compared with the year before.

The position of the grower is excellent. Not only were his production costs low, but relatively speaking he is probably getting a better price for cotton than ever before, taking into account that grades once unsalable at any price, are now eagerly sought and are bringing from 5 to 10 cents a pound above the 10-year average price of middling; good ordinary cotton is bringing within a few cents a pound of as much as it did when middling was selling at 40

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cents; besides which the cotton farmer's money will buy more than it did when cotton was 40 cents.

The fly in the ointment is the unpaid land note given during the riot of buying of cotton lands.

However, the belief is quite general that it will not be possible to over-produce for some years to come, and for that reason even the grower who is deeply in debt faces the future with the utmost confidence. Money and credits will be ample for the new crop and every acre possible will be planted; labor scarcity will be the limiting factor. Labor scarcity, however, may not become acute until the picking season because of the fact that one man is capable of planting and cultivating as much cotton as several can harvest.

Cotton Wastes Have a Good Year

Continuous Advance in Cotton and Its By-Products—Spinnable Stocks, Especially Combers, Scarce and High

COTTON wastes had a good year in 1922. It is the story of a continuous advance in the price of cotton, its by-products and wastes. The advance in spinnable stuffs, combers and strips, was even more noticeable. At the beginning of 1922 with cotton around 19c. combers were selling on a 70 per cent. basis. The end of August found cotton at 22c. but combers had now risen to a 90 per cent. basis; at the end of the year peeler comber had advanced to 93-95 per cent. on a 26c. cotton market.

For months this market has been short of material and has gone to all kinds of trouble to uncover new supplies, even to the extent of reimporting materials shipped to Great Britain and the continent earlier in the year. The outlook for 1923 in combers is not at all reassuring either for domestic or Egyptian qualities. Tire fabric manufacturers, the largest users of Egyptian cotton, are utilizing more carded yarns than formerly and this will diminish to a very considerable, if not serious extent, the supply of Egyptian and Sak. combers.

As a general proposition contracts made by dealers at the beginning of 1922 were on a low basis and the continuous advance in cotton during the year enabled waste material dealers generally to recover from the results of unsatisfactory business during the preceding year. Contracts for 1923 have been made on a high basis. The market nevertheless takes a hopeful view of the situation in spite of the fact that contracting on a high level and at high percentage prices together constitute a situation of more than the usual hazard; but so far as combers are concerned the supply probably will be so inadequate as to make this material more of a law unto itself.

The year opens with all kinds of wastes on the highest level for many months. It may be a question as to whether or not this will check purchases; but if precedent counts for anything higher prices would bring in buying while lower ones would incline purchasers to hold off hoping for even lower levels.

Year Opening Promising

The cotton waste market in January of last year was dormant but beneath the surface recuperation was proceeding and forces were at work that would, in the long run, place the waste market on a firm and stable foundation. Dealers were riding with the cotton market, waiting for some favorable turn in events. Cotton at 19c. was considered normal taking everything into account and it was the expectation that increase of business, confidently anticipated, would carry cotton to a higher level and along with cotton would go its wastes and by-products. Little stuff was moving but prices held firm. Combers were quoted 13-14c.; Egyptian combers 11-12c.; peeler strips 11-12c.; threads 8-9c. Contracting was under way both in the North and in the South. Dealers, however, were acting cautiously.

Spinnable Wastes Decrease

The market in March was held in place by firmness in good spinnable stocks. Choice peeler comber was becoming scarcer every day and houses having this commodity saw no reason why they should make any attempt to sell it at recessions. Second grade spinning stocks were in better demand owing to a growing shortage of low grade and tinged cottons which had been bought quite extensively at low prices. Combers furnished the main strength of the market. Large exporting had been done and available stocks of really choice combers were becoming low. New Bedford production of these by-products had fallen off quite considerably.

Bedding waste makers were inactive and likely to remain so until the early summer. Soiled card wastes were moving more freely. Domestic demand had been better and there had also been some exporting of the material to Germany. More interest was now being shown in oily cards at unchanged prices. Some buying of colored strips was reported, selling in mixed colors and also solid around 12c. for good materials. The cotton manufacturing situation by the end of March showed but little improvement and it looked as though such textiles might maintain more of a stationary position while the general business of the country moved forward.

April opened with bedding stocks accumulating. Good buying was expected provided the general industrial situation in the country showed some marked change for the better. Linters were not over-abundant and any increase in business on the part of bedding manufacturers would be felt in larger demand for pickers and flys for which better prices were anticipated.

More Export Business

Export business from Boston in January was quite a little better, totalling some 5,000 bales, the larger portion of which went to Great Britain at an average cost of around 12½c. The market was hoping for better business with Germany, as the German cotton industry was moving ahead quite rapidly at this time.

Wastes generally were firmer. Dealers thought of choice spinnable stocks in terms of higher prices. Supplies of these commodities were coming into the market in such small volume that a limited domestic demand coupled with increasing export demand was more than sufficient to take care of mill production. Good combers held strong on 80 per cent. basis. Bedding waste covering such materials as pickers, fly and linters continued quiet, although upholstery manufacturers had been in the market for limited amounts. There was no movement in threads. Machiners were picking up cheap lots of cop, spooler and other wastes likely to be of value to them when the railroad and general industrial demand for wiping wastes appeared.

Split Market in June

June found the market divided into two main divisions, spinnable stocks on the one hand and all others constituting the neglected department on the other. In the flat price stocks values had not kept pace with the rise in spinnable stocks and of spot cotton. Threads in particular were low priced. Contracts at the beginning of the year were made in many cases to run six months. The end of these contracts was now in sight and producing mills were asking higher prices. Cotton consumption was on the increase, but the market did not expect to be overstocked with choice peeler wastes during the remainder of the year. Customers were coming into the market in larger numbers. Some dealers were quite outspoken in advice to their clients that although prices seemed high there was at least an equal chance that they would be considerably higher. Threads became a little stronger. White cop waste was quoted 10-11c.; other threads around 9c. Pickers and fly were firm at 5½-6c. Low grade waste and uncleaned materials generally were neglected.

It would have been a great relief to cotton waste trading everywhere if the large stocks of low-grade materials ranging from sweeps to oily cards could have been shipped off to continental Europe, where they could be utilized to considerable advantage. In this country there is practically no use for these materials; but Germany alone has a hundred mills or more using almost exclusively grades of waste that American manufacturers rarely utilize.

August was a month marked by a fairly stable cotton market against which the better class of wastes continued to rise. At the opening of September the cotton waste market was at the peak of the year. A little more waste was coming in from the mills. Cotton mills wherever possible were using up their own good materials, selling only their second-grade and unspinnable stuff. Prices for spinnable stocks were now on the high level of the year to date.

Estimated Comber Production

There are no reliable statistics regarding total production of combers in this country, but a normal figure was placed tentatively at from 250,000 to 300,000 bales. This estimate was based upon a 15 per cent. output of combers in the consumption of 2,000,000 bales of cotton in the manufacture of combed yarns. Every one knew, however, that for several months the combing section of the market had been relatively inactive and there were some who said that 100,000 bales of combers was the maximum production on last year's crop.

High Prices Check Buying

From the consuming standpoint high prices tended to keep buyers out unless they were willing to pay the prices demanded. Without this check of high prices the market would have been swept completely clean of stocks. Non-spinnable materials as a whole were in somewhat better demand. Wiping waste manufacturers appeared to be getting a little more business resulting in a larger demand for cop, slasher and similar wastes. Fly and pickers also were busy and at higher prices. Choice white cop was held firmly.

The question as to what kinds of waste could be imported duty free had now been settled definitely and concisely. There could be no further misunderstanding of the situation. A decision was handed down by the Assistant Secretary of the Treasury stating among other things that "Waste beginning with the picking machine and extending through the various processes of manufacture to the weaving loom is entitled to admission duty free, if the waste has not been advanced in value by some additional process."

Towards the end of the year cotton waste dealers were more interested in arranging for contracts for 1923 than in anything else. They were partly reconciled to the thought of higher percentage figures but less reconciled to the idea of making contracts to cover the entire twelve months. To contract for a whole year at a time when cotton was at the highest point for many months was an operation with more than the usual amount of hazard. This hazard would be reduced considerably by mills taking four or six months contracts instead of standing out for the entire twelve months. Contracting proceeded slowly. Houses with their regular connections were moving as rapidly as they could, doing their best to secure low percentage figures and if possible shorter time contracts.

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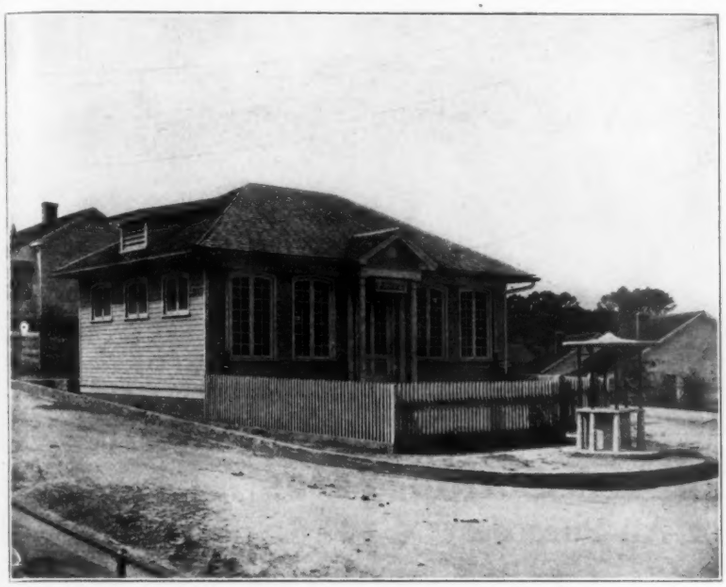
Educating for Jobs Higher Up

(*Continued from page* 182)

the junior high school and three in the senior high school.

The Lanett School

The school at Lanett is the largest school in the state of Alabama. This year over 1300 students are enrolled,



Library at Riverdale Mills of the West Point Mfg. Co.

of whom approximately 250 are taking high school work. The curriculum is arranged along the most modern lines and the writer, after going over the courses offered, felt his own alma mater, a much-revered city high school of not so many years ago, shrink to the proportions of the "old red schoolhouse on the top of the hill."

But interesting as is the day school, with its art, music, textile courses, etc., the most absorbing work done there is the vocational education. There is nothing hit-or-miss about the night classes at Lanett; they have been developed by as careful and novel a plan as the writer has ever encountered. The Lanett training plan is entitled to a place in the educational Hall of Fame of this country.

Its origin goes back to about five years ago when the superintendent of the Lanett school, C. E. Lunceford, started to go to school himself. In the evenings he took a correspondence course in textiles. Nothing startling so far. The writer is not an ardent supporter of correspondence schools, and he probably would have left out this part of the story, if there had not been another angle to it.

Mr. Lunceford is not a practical mill man; he is an educator. He could grasp the theoretical side of textile manufacturing but it is doubtful if he could have applied it to mill problems merely by following the correspondence course. So several men were picked from the mill, including the office manager and certain wide-awake key-men from the operating departments. This group met with Mr. Lunceford at night and exchanged their practical knowledge for his theory. Through these seances each side got what he lacked, and the problems included in the correspondence course were worked out and submitted by Mr. Lunceford.

This was the beginning. The course lasted over a period of years but the school superintendent became not only a student but a teacher. Classes were organized and Mr. Lunceford taught them the subjects which he had studied himself and which, with the aid of his conference of mill men, he had applied to practical manufacturing problems. Thus courses in cotton, carding, spinning, weaving, etc., are given to young men who want to build a future for themselves in the mills.

The classes are necessarily limited in size; membership is not a duty to be dodged but a privilege to be sought. These groups, attacking mill problems with the earnestness which is bound to feature voluntary night work on the part of those who labor hard all day, are the nucleus of an exceptionally fine technical organization. The course is developing year by year, and as the school superintendent is increasing his own knowledge constantly, he is also imparting more and more to his students. It is continually becoming more strictly Lanett in character, and better fitted for the individual conditions of that plant.

Passing It Down the Line

This technical training is one of two features which make the West Point group of mills worthy of study and imitation. The other is a process of economic education which complements this practical work and insures the output of balanced key-men.

This process starts at the top and works down. Every Monday morning Mr. Lanier meets his superintendents in his office and lays the cards on the table. He tells them of manufacturing and market conditions, keeps in touch with the work of their mills, and answers any questions which may arise or advises when advice is needed.

The next step is passing information along to the overseers. Each superintendent holds daily meetings with his department heads, keeps them informed as to fundamental conditions and thrashes out with them any production problems which may be confronting the mill. He also holds a weekly meeting with the second hands.

The impulse which is started in Mr. Lanier's office spreads out through the organization like the ripples when a stone is thrown into water. It does not stop until it reaches the mill sweeper. Down the line this information goes, modified in scope and form to fit the mentality and needs of the recipient, but scattering the mist of rumor, conjecture and discontent which so often beclouds a mill atmosphere.

Effects of System

It is not necessary to theorize on the results of the West Point system. There is hard, cold evidence of its efficacy. That group of mills has become a training school, not only for its own organization but for many other mills. There are 2,000,000 spindles being operated by men who have worked up from the bottom at one of the West Point plants and have been called to positions of responsibility in other companies. From the Shawmut Mills alone there have "graduated" an agent, an assistant agent and five superintendents—all trained at that plant and now making good elsewhere. The man who became an agent started at Shawmut as an operative at 20 years of age; passed up the line to loom fixer, second-hand and overseer; was claimed by another mill as assistant superintendent; and advanced there to superintendent and finally to agent. This progress occupied ten years, during which period he went from $1.25 a day to $10,000 a year.

Nor is this all. The visitor to the plants cannot fail to be impressed with the fine body of young men who man the mills in all their departments —keen, alive, informed and courteous. He will probably note the absence of discord and spite, and the presence of a clean spirit of rivalry and helpfulness.

This condition, in the writer's opinion, is brought about by the vista of success which is disclosed to each operative. The new worker soon finds that he is not up against a stone wall, with nothing but a succession of monotonous tomorrows ahead; he sees his buddy or the man in the next room start up the ladder and knows that he, too, has a chance. For all promotions in the West Point group are made from the mills themselves. A superintendent or an overseer is not imported from outside to fill a vacancy. Each man in any sort of responsible position has at least one under-study. Mr. Lanier stated that, if one of his superintendents should leave suddenly, and he should find there was no one in the organization to fill the place, he would consider this deficiency as a reflection on himself and his conduct of the business.

School Building at Fairfax Mills of West Point Mfg. Co.

In the same way, he has impressed upon his superintendents that a "scrub-team" of overseers is an absolute necessity, and that the absence of such a team is a reflection on their own efficiency.

The writer believes the question asked Mr. Lanier is answered in the above. These people will not be educated beyond their jobs because he is always keeping another job just ahead which will require still more education and training.

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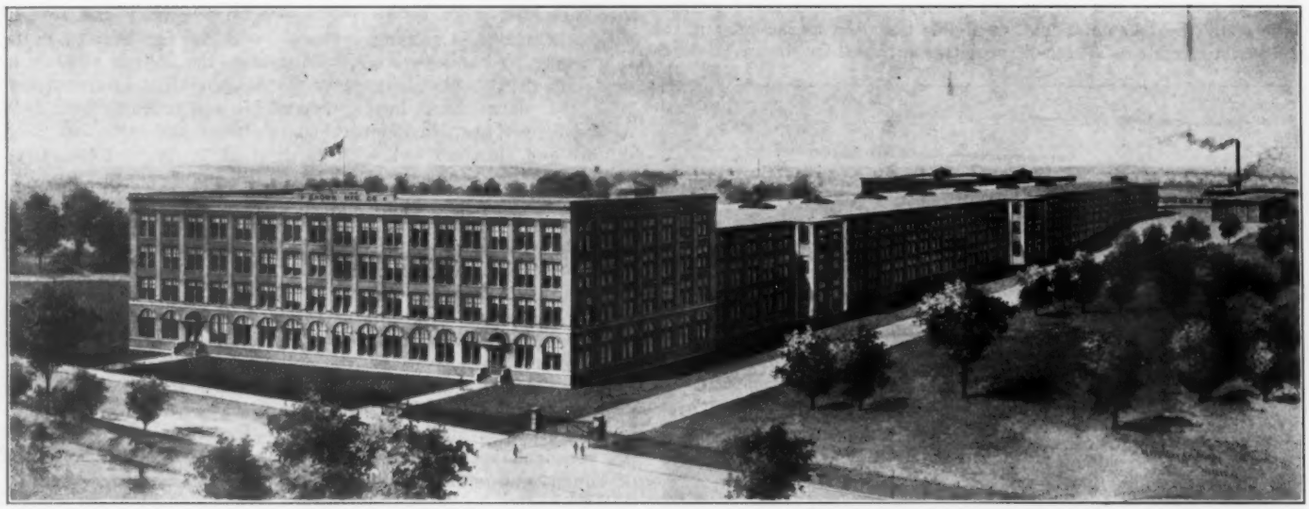

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Mill School Garden at Ottaray Plant of Victor-Monaghan Co., Union, S. C.

Field Day at Monaghan Plant of Victor-Monaghan Co., Greenville, S. C.

Progress at Victor-Monaghan Company

(*Continued from Page* 183)

mentary subjects for employes who had no educational advantages in their youth. It is an inspiring sight to see a man of 50 years old spending his leisure hours in learning how to read a primer and how to sign his own name. The exercise of grit required in this connection is in itself no small feat.

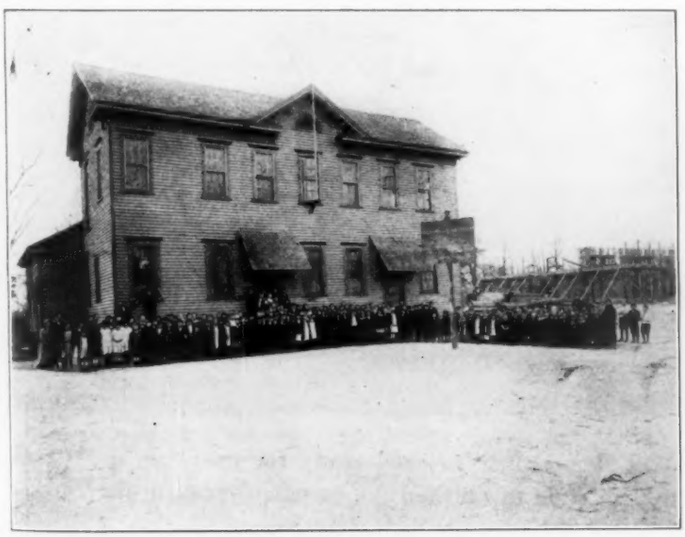
Then there are classes above the seventh grade for those who went into the mill after the regular school work and desire further education. One of the most important advanced classes is that in mill arithmetic.

There is also a class in loom fixing, where operatives learn how to take down and put up a loom and gradually qualify themselves as loom fixers. It is interesting to note that promotions in the mill can be traced almost directly to attendance at the night vocational classes.

The other side of the picture can be obtained after a ride of 50 miles to the Walhalla plant of the company where the operatives are largely people who are not far removed from early life in the mountains. The writer had the good fortune to visit Walhalla on the occasion of a tournament between the operatives at that plant and those at the Seneca plant of the company. A day and evening crowded with basket ball, card games, billiards, horse shoe pitching, supper and band concert gave him an opportunity to study the human accomplishments of the southern cotton industry. He came away impressed with the fact that manufacturers in that section, whether consciously or unconsciously, are doing about as big a piece of real work in the development of their employes as is being done by any one factor in the country. The writer is not given to sentimentality and hesitates to use apparently trite phrases but so many unjust statements have been made by union leaders and others purporting to show that community work down South is merely an attempt on the part of manufacturers to dodge the paying of fair wages, that a little truthful press-agent work is necessary.

A concrete demonstration of the effect of the educational work at Monaghan may be obtained from the fact that the percentage of illiteracy in that community is only 6 per cent as against an average of 13 per cent in the state of South Carolina. This one accomplishment would justify the entire community work because if there is any one factor which has been retarding the development of the South it has been the high percentage of illiteracy which followed the Civil War. With illiteracy have gone poverty and retrogression; descendants of fine old families have found it difficult to rise above the handicaps of lack of education and consequently any attempt to remedy this situation is for the good of the entire section.

The personal side of a mill organization is always of interest to the writer because he can usually trace developments or lack of developments to the attitude of those in executive positions. In Mr. Beattie, one sees the motive power back of the community work done by his company. A short talk with him is enough to convince any one that his people are not just numbered workers but are friends for whom he feels affection and respect. The door of his office is open to every one down to the mill sweeper and he has so adjusted the details of his work that he can always find time to be courteous and to lend an ear to any one with a question or a grievance. In Mr. Hollis the company has the dean of community workers in the South and a man who knows instinctively how to help without patronizing. He goes on the principle that his duty is to inspire the workers and their families to help themselves.



Evolution of the Mill School. At Left: Old School of the Piedmont (S. C.) Mfg. Co. At Right: School as It Is Today

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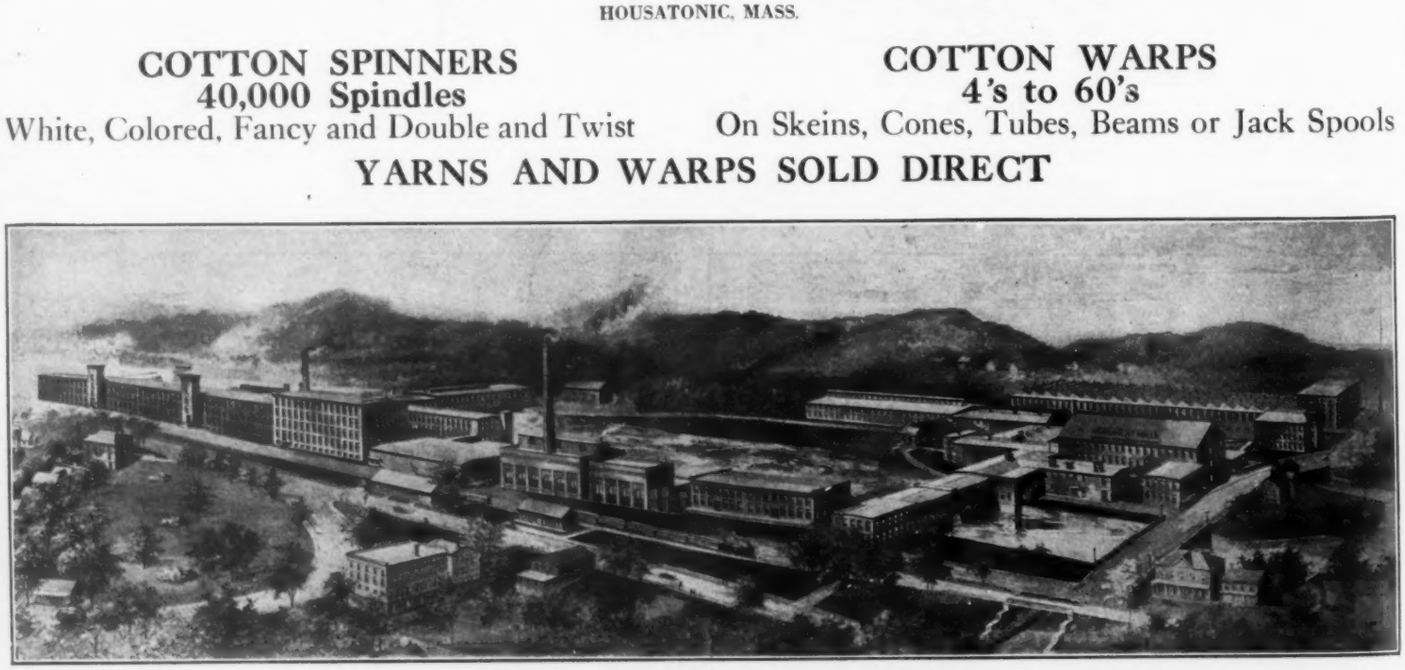

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Great Overcoating Year in Men's Wear

Worsteds for Suitings Showed Great Improvement as Year Progressed—Tweed Falls from Grace for Lack of Service—Strong Wool Market Through Year—Foreign Overcoatings Sold in Volume—Tailors-to-Trade Less Active—Clothiers Reduce Wages Early in Year

ONE of the greatest overcoating years that the men's wear market has ever seen has lately closed. Trade authorities are hopeful that 1923 will duplicate the success of 1922 in this field, and at the start it gives good promise of so doing. In suitings the year 1922 saw the fall of the tweed in public estimation and the return of the fancy worsted. As the trade now stands on the threshold of another season, however, it remains to be seen whether the worsted will hold the place it has gained. The worsted manufacturer can hold his market only by fighting for it since the clothier is again predisposed to favor the woolen suiting because of its more attractive price. The outcome of this next step in the constant struggle between the woolen and the worsted will be written into history in the columns of this department in next year's "Annual." In the meantime, the ingenuity of manufacturers in turning out attractive styles at attractive prices and the vagaries of the public's taste modified by fluctuations in its buying power are working out market destiny.

Price Trend Upward

In a general way the price trend through 1922 was steadily upward. There was a slight set-back in July and August at the time of the spring opening, which was, however, more apparent than real. The fall opening, which came in late January and early February, established the lowest price level seen on the market for many years. Through March, April and May there were two and even three advances in price, which elevated the market to a point 10 to 15 per cent. above the level at which the season had been started. It is impossible to say what percentage of the season's business was taken at the top levels, but it is probable that it was not a very great proportion. When the spring, 1923, season was started in late July, close figuring and strong competition resulted in the setting of a level which, while still perhaps 10 per cent. above January levels, marked a reduction from the advanced values declared on fall duplicates. This spring opening was in turn followed by advances during September which again raised the market perhaps 10 to 15 per cent. This upward movement in the middle of each season is regarded as a good merchandising policy, since it adds value to clothiers' early purchases and makes the next succeeding opening all the more attractive, if shaded.

During these twelve months the raw material market maintained a steadily upward march until November, when there came a resting spell induced perhaps by caution, perhaps by withdrawal of buying support and perhaps as the result of criticism of alleged speculation. Whereas not long ago the men's wear and dress goods trades were the only takers of raw wool of consequence, except for carpet mills, which, however, center their interest on a class of wool not generally used in clothing fabrics, now the knitting trade, with the vast development of knitted outerwear and the lesser expansion in the use of woolen and wool mixed hosiery, has become a wool buyer of prime importance. If the knitted outerwear trade can afford to pay certain prices for its raw material and boosts raw wool to that point, men's wear mills must follow, whether they can afford to pay the levels or not, or else go without and substitute a less expensive raw material.

A Great Overcoating Year

The heavy movement of overcoatings during the year and the complete liquidation of stocks in the hands of mills, clothiers and retailers at the end of the season has been the outstanding feature of 1922. Preparations for a big overcoating season were made at the start of the season, and overcoatings, particularly fancy backs, were sold up within a short time after the opening. Forecasts were made during the early months that the movement of goods would be exceptional. Toward the close of April, after clothiers' salesmen had been out for only a short time, William M. Wood, president of the American Woolen Co., authorized an interview to the effect that the big company was inundated with duplicate orders, all of which they could not possibly fill because of the sold-up condition of many of the mills.

The coating business covered all lines. The popular-priced goods selling at $2.00 to $3.00 per yard were the first to go, but the higher-priced goods, from $5.00 to $8.00, were not far behind and call for them became exceptionally keen as the season progressed. Consumer support did not disappoint when the time for distribution at retail came around. It is rare that early anticipations are so fully borne out. Last fall this branch of the market even exceeded what had been hoped for it. Consumers bought overcoats as though their wardrobes were absolutely without them and they paid prices which the most optimistic on the market had scarcely counted upon for a real volume business. Many of the best sellers were from $50.00 to $60.00. At the season's close manufacturing clothiers' racks were stripped. At the end of December many clothiers could not deliver a single garment. Retailers had no surplus and the usual cut price sales after Christmas did not develop. There were a few sales to clean up odds and ends, but even these were not sacrificed.

New Light Colors

One of the secrets for the great overcoating movement during 1922 was the introduction of the new vogue for light colored coatings for winter wear. The newness of this type of coat not only was attractive to those about to purchase a coat, anyway, but it also induced a great many to buy who otherwise would have tried to make the garments already in their possession from previous winters carry them for another season. Fancy backs were the leader throughout the year, and, in general, the preference for the face of the fabric was solid color effects with browns, tans and camel's hair the most sought-after shades. There was a movement of tweed-faced fancy backs early in the season and herringbone weaves, but these fell into comparative obscurity at the height of the period of actual distribution. Toward the close of the year a tendency was noticed among the samples prepared for fall, 1923, to feature pattern on the face of the cloth to a greater extent. One line which holds promise of popularity shows vari-colored overplaids on the face, and the back is a solid color camel's hair effect. This reverses the previous fancy-back idea wherein the face was plain and the reverse decorated.

Confidence in the continuation of eager buying of coatings has been evidenced by the fact that at least 20 mills made their fall offerings ahead of the opening by the American Woolen Co. These smaller openings began in the second week of November. Many of them showed advances upon the previous year amounting to as much as 30 per cent.; in others, where the manufacturer was not quite so sure of his ground, forward business was taken only "at value."

Foreign Coatings a Feature

Another reason for the early entry of these overcoating lines is to be found in the pressure exerted by British manufacturers for American business during the last three months. Clothiers found that coats made from foreign goods had a ready sale and the power of the foreign label over the mind of the consumer was enough not only to sell the garments quickly, but at times to permit attractive margins of profit. The majority of the British-made fabrics cost from $5.00 to $6.00 landed, so that it may be seen that they do not compete directly with the low end of the domestic product.

Coats from foreign goods have been retailed from $50.00 up and buying foreign merchandise seems to be the only defense which the clothiers have against an influx of foreign-made garments. Such garments have sold to considerable volume and these, plus the American-made coat of imported fabric, are an element the competition of which must eventually be felt by the domestic woolen manufacturer. However, the coming season appears to have sufficient absorbing power to take care of the foreign influx as well as the domestic product.

At the start of 1922 clothiers showed marked preference for woolens in the suiting field. Tweeds had been well bought for spring and they were stressed for fall, with a large part of the buying going to lines under $1.75. By early March a number of woolen lines had been sold up and withdrawn for the season. Worsted suitings developed slowly with buyers hesitating to go beyond $2.75 for merchandise on which they planned to do a bulk business. During May and June, however, there appeared a marked change in sentiment and after the advance which took place at that time considerably more interest was shown on the worsted than on the woolen end.

Worsteds Gain Better Business

The concentration on woolens by manufacturing clothiers and the use of many of the cheapest lines which lacked sufficient wearing quality to warrant their being made up into any kind of a suit developed an opportunity of which tailors-to-the-trade and custom tailors were quick to take advantage. It has frequently been said that the American nation is a worsted-wearing people, and there are doubtless many who will wear no other kind of a suit. When this type of buyer failed to get what he wanted in a ready-made garment, he turned toward the tailor, who, having anticipated this event, was prepared to supply his needs with the worsteds to which he had been accustomed. Buying by tailors-to-the-trade and custom tailors during April proved of great assistance to worsted mills, which before that time had stood in great need of advance business, and the movement rapidly spread so that by the time spring 1923 goods were offered at the close of July, the manufacturing clothier was predisposed to favor worsteds in his fight to recover that part of his trade from the custom tailor. Worsted manufacturers were fortunately in a position where they

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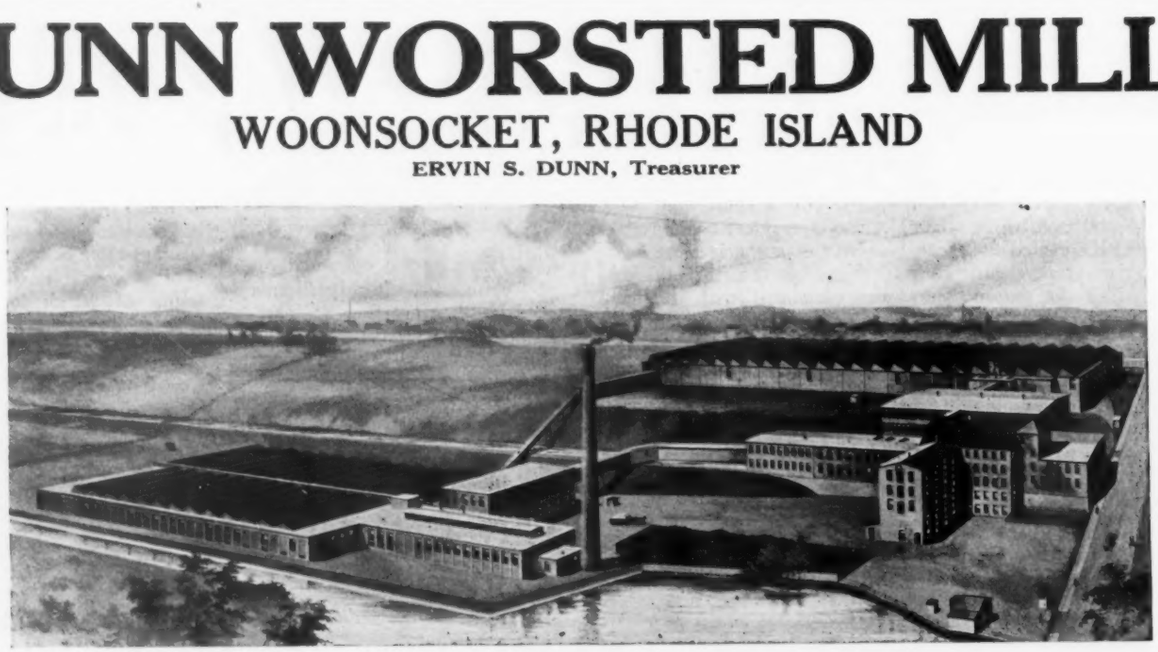

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could encourage this turn in their favor by the naming of remarkably low prices. Comparing this spring offering with that of the year before worsteds were only 3 to 4 per cent. higher, while woolens were up 10 to 15 per cent. Worsted manufacturers were aided by the possession of raw material supplies bought on the lower basis of 1921 and not consumed because their previous business had been so light. Woolen manufacturers, on the other hand, had previously enjoyed a large business, had consumed their low-priced stocks and were forced to go into the future more nearly on a full replacement basis. As the wool trend had been continually upward this replacement basis was relatively high, and the spread between woolens and worsteds was reduced to unusually small compass at the start of the spring, 1923, season. Through September and October the scattered declaration of advances developed into a really general upward movement and such lines as had not previously been sold up were then taking reorders at 2½ to 10 per cent. above the opening.

"Three-season" Year

The fact that tweeds were still a popular fabric among consumers in the spring of 1922 proved helpful in the distribution of garments of featherweight summer cloths, the tweed being too warm for comfort on the hottest days. The movement of very lightweight worsteds and mohair specialties reached a large volume last summer and the clothing trade has confidence that a "three-season" year has been established. These summer cloths for the 1923 season were opened in some quarters during June and the size of the business booked indicates that clothiers foresee a continuation of wide retail distribution during the coming summer.

With the return of the worsted to more general use, efforts were made to establish a worsted fabric for sports wear. It was argued that if the tweed was failing in popularity for every-day wear, it might easily be displaced in the sports wear field if an attractive substitute of worsted construction could be offered. The whipcord was elected to go after this business and although orders were satisfactory when the vogue first started there was a feeling that the fabric would be short lived. Several excellent lines were shown around $2.37½. The conventional objection to the whipcord was the claim that it was too close to a uniform fabric to be accepted with much enthusiasm by the general public, and this argument seemed to hold despite the fabric's serviceability and fitness for outing wear.

Tweed Loses Vogue

The low-end tweed, which unfortunately gave the whole woolen group a black eye in the minds of many consumers, has been exceedingly quiet since early last year and does not figure in any noteworthy way in the spring, 1923, business. As the year closed, however, clothiers showed distinctly more favor toward the woolen fabric because the continued advance had elevated many of the worsteds beyond his reach. It now remains to be seen whether woolen mills can develop a cloth which is strong in serviceability and yet not too high in price. For the coming season the worsted no longer has the advantage which it had last July of a comparatively small spread over woolens. Both classes are now being priced more directly on current raw material costs.

Compared with past seasons, the tailor-to-the-trade placed only a small business during 1922. The national advertising by manufacturing clothiers and their superior quality of fabric and care in tailoring has brought a wider clientele into being for ready-made garments, which, at the same time, has narrowed the business of the tailor-to-the-trade. For the latter class of merchants, the South is the best territory at the present time and they are holding their own there through a careful selection of the fabrics suited to this particular trade.

Barometer of Price Changes

The history of the year's price fluctuations is well recorded in the various announcements by the American Woolen Co. This concern started the fall, 1922, season on Jan. 23, prices then showing a reduction of 2½ to 5 per cent. The serge, 3192, was opened at $2.35 as compared with the previous year's $2.42½ and the fall, 1920, opening at $4.50. The 16-ounce serge, 3844, opened at $3.32½, as compared with $3.37½ and $6.45, respectively. On April 13 the American Woolen Co. advanced its lines of woolens from 10 to 45c. Shortly after its semi-staple and fancy worsteds were advanced from 10 to 22½c. and its serges 5 to 17½c. At that time 3192 was at $2.45 and 3844 was at $3.50. Toward the end of May woolens were again advanced by amounts ranging up to 55c., giving a total advance of from 10 to 82½c. On May 31 the second advance in worsteds was from 2½ to 25c. After this last advance 3192 was at $2.67½ and 3844 was at $3.77½. The big company started the spring, 1923, season on July 17, at which time 3192 was opened at $2.50 and 3844 at $3.62½. Before the close of August most of the company's lines were withdrawn. On Oct. 4 the company reinstated certain lines for spring at an advance of 2½ to 37½c. At this time 3192 was quoted at $2.70. It was later advanced to $2.80 and opened on Jan. 22, 1923, for next fall at $2.67½.

Clothiers Wage Reduction

One of the outside influences which aided the men's wear market early last year was the wage reduction which was put into effect in most of the important clothing centers. This reduction amounted to 10 to 15 per cent. and was valuable in permitting the clothier to keep down his prices at a time when the consumer was beginning to come to life, but was still particular as to clothing values. For the future, buying power seems better established than during the first part of 1922. Employment is general throughout the country and it seems likely that the upward movement in rents, which factor has lately taken so large a part of the average family's budget, has come to an end, and whatever increase in earnings there may now be, may be more freely invested in clothing.

Greater Diversity in Women's Wear

Tweeds Give Place to Other Fabrics—Holding Down of Prices Aids Distribution

A FAIRLY satisfactory year has been experienced in the women's wear woolens and worsteds which sell to the market's bread-and-butter trade. The successful effort by mills to hold prices down has proved a great aid in maintaining broad distribution. In the fabrics which hold their place through high quality and correct fashion value, painstaking and attractive styling has stimulated the movement of goods to the point where most mills have had all the orders they needed. The price trend through the year was continually on the up-grade, and, as a result, operators in the market have had no regrets over the value of the goods they have bought.

Upward Trend Through Year

The year started with goods at their lowest point, which was something of a setback from the levels reached at the close of 1921. The opening by houses which dominate the market was surprisingly low on many numbers. A napped coating for example which had been offered at the fall, 1921, opening for $3.27½ and subsequently advanced to $3.52½, was priced for fall, 1922, at $3.05. A twill which sold through the latter part of 1921 at $2.25 was opened at $2.15. A serge which opened the previous year at $2.10 was priced at $1.87½. These figures are typical of the attractive values offered, not only in the low end of the market but also among the higher priced specialties. Staple worsted dress goods from the corporations which sell a large part of their product to the jobber for retail distribution over the counter were offered at proportionately attractive prices.

As the year progressed the strength of the raw wool market and the upward movement in yarn quotations, underlying the fact that mills had satisfactory orders ahead for nearly all lines, resulted in a gradual price advance. The opening which began at the close of July, for spring 1923, established a higher level, showing as it did gains of about 5 to 10 per cent. over the January values of similar cloths. For the spring season, also, application by the coat and suit trade was fairly generous and a number of the popular lines were sold up shortly after their showing. The lines which were fully sold up at opening were advanced within five or six weeks thereafter and late buyers found themselves confronted with necessity of paying a slight premium. The year closed with general firmness throughout the market and with a satisfactory volume of business on the books for future delivery.

Tweeds Lose Popularity

Tweeds for women's wear saw the best of their popularity come to an end with the spring 1922 season. Through the early months of the year there was generous call for merchandise of this class. Demand had spread somewhat from the staple effects previously in vogue to fabrics illuminated with silk decorations or with their surfaces broken up by the introduction of nub yarn. This novelty element was of great assistance in extending the vogue of tweeds through the first half of 1922, after their successful year during the 12 months previous. Since the close of last spring season, the tweed has settled back into position of much less prominence, although the introduction of new variations and superior qualities in certain quarters mark efforts to retain part of the suit trade for this fabric. One of the novelties which lately has met some success is a honeycomb weave made of tweed yarns. Also in an authoritative showing of spring 1923 garments, tweeds from a hand loom industry of Scotland have been shown in a number of high-priced models.

A fabric which made capital of the failing vogue for tweeds is the eponge, which was introduced for a number of uses previously dominated by the tweed. The eponge motif showed itself not only in the "sponge" cloths in which the idea was used throughout the face of the fabric but it was also found in pattern forms on a ground of plain weave. Somewhat allied to this was the use of boucle effects in plaids and stripes for skirtings and other uses.

Poirets Lead Twilled Worsteds

In the large group of staple and semi-staple worsteds used for dresses, suits and separate skirts, there has been a constant vogue for serges and poiret twills through the year. Tricotines began the year with fair support but they soon gave place and the poiret twill became the dominating fabric in this division of the trade. As is usual when marked popularity centers upon a particular line, prices on poirets outran the advance in the rest of the market. Lines which opened during August and were bought by jobbers were resold during the early fall at a substantial premium. The turning of many looms to poirets has developed a volume of production which appears to have

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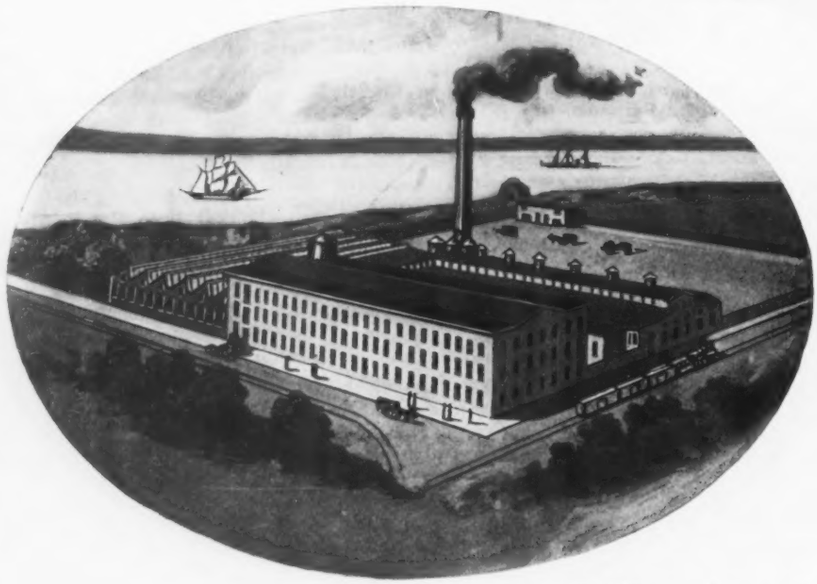

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caught up with demand and the fall of 1922 closed with distinctly less keenness throughout the secondary market. Manufacturers, however, being well sold ahead, were unaffected by the failure of certain high prices to maintain themselves, from which high levels, however, the mills had never benefited. The tricotine position was slightly improved at the close of the year.

The staple serge met a marked curtailment of production which was sufficient to maintain prices, and later to strengthen them, during a period when the serge had given up its leadership in the market. The New England textile strike took many months' production of such mills as the Pacific and the Amoskeag out of the market. When these and other manufacturers opened their lines in the latter part of the year they found that orders were running in excess of the volume which they could deliver. As a result merchandise was allotted and some buyers were cut down more than 50 per cent. In the last two months of the year some of the leading serge producers kept lines "at value" and orders then booked were subject to delivery at a price to be named early in 1923.

One of the great influences which aided the distribution of staple and other goods of plain effect was the use these fabrics found in combination with similar weaves in fancy and novelty effects. For example staple navy serges proved good sellers for use in costumes in which plaid serges formed a prominent part. Fancy checks and plaids in flannels and similar brushed surface cloths were utilized for contrast in garments featuring the flannel in solid color. As the year closed a similar movement was noted in broadcloths with pattern effects coming into the market for use with the usual piece dyes.

New Field for Sheer Goods

After the opening for spring during August and September, 1922, selling agents began to encourage the movement of the cutting trade toward a use of extremely sheer worsted fabrics for summer dresses. This marked the entrance into a field which for many seasons had been entirely dominated by silks and cottons. The ultimate success of this movement will probably not be established this season, but the fact that success has already met the showing of separate skirts in the sheer fabrics referred to, suggests that in later seasons consumption of these goods may broaden. The lines which have been pushed for summer wear include wool taffetas, nun's veilings, henriettas, fine wool crepes, feather weight serges, etc. So far plain white has been the most successful finish, but stylers believe a great opportunity awaits the introduction of printed or woven designs.

The wool crepe proved a good seller through most of the year, paralleling, as it did, the use of the heavier crepes in the silk field. In general demand was best for wool crepes of substantial quality, but toward the end of the year a number of very cheap lines were placed on the market and their development is being watched as a possible detrimental influence to the progress of the better grade of crepes.

Ribbed Fabrics Hopeful

Ribbed fabrics, including such fabrics as poplins, repps, Bedford cords, etc., made gains as the year progressed and stylers are hoping that the Bedford cord type of weave will find wider usage among women during the coming year. The finer corded effects such as the poplin, present an appearance when made up in a garment which is similar to the covert and the gabardine. Some users argue that the tailoring qualities of the poplin are not so good as those of the diagonal weaves, but at least the ribbed group closed the year with a brighter future ahead than it had at the opening of the year.

Change in Coatings on Way

In coatings the highest quality offerings of pile effect fabrics had an extraordinary vogue. In particular such a line as Marvella was so keenly sought that cutters were reported to have gone into retail stores for supplies when the wholesale market was completely cleared of goods. Price seemed a small consideration and much of the better class materials where they were distributed by jobbers brought a considerable margin over the original mill price. The absorbing power displayed for the best grade coatings did not retard the distribution of the cheaper sorts and merchandise at around $3 a yard sold well through the mid-year for distribution in the fall. The colors popular in the season just preceding continued with little change, browns being the dominating shade, with more blacks distributed, however, than for many seasons. Camels' hair, both real and imitation, have continued to hold their place in the market.

A new note in the coating field was struck at the spring openings in September by the better grade houses, which in turn followed the styles set by Paris six or eight weeks previous. This new feature marks a departure from smooth, uniform effects popular for several years, to blister, matelasse and brocade surfaces. Buyers showed general interest in these new fabrics, though their operations began cautiously because of their inability to foresee exactly what the public reception of such lines might be. As the year closed it was evident that the trend was distinctly toward novelty surface effects with the likelihood that the pile effect coatings, which had become a market staple, were gradually to be displaced from the field of formal wear. In this connection it was significant that several coat houses were showing semi-sport coats made from the Bolivia type of fabric which heretofore had been restricted to the more dressy garments. Just how long the inertia of popular demand will continue to carry the conventional style of pile effect coating remains to be seen. It still has a strong hold upon the popular taste of the great middle class, and the new coatings will have to prove their merit before they can gain a position of actual dominance.

Diversity Puzzling to Buyers

The greater diversity of offerings in woolens and worsteds for women's wear at the close of the year is one of the factors behind the hope for an excellent business in 1923. It is believed that women generally will want to add one or two, if not more, dresses and coats from the new fabrics in their wardrobes and that this activity will greatly increase retail garment sales throughout the country. The situation is not an easy one for the cutter since he quite reasonably hesitates to commit himself ahead on a wide variety of merchandise which has not yet proved itself. As a result there is a tendency among the garment trade to buy closer to the season of actual distribution, and the problem for the mill in securing a satisfactory volume of orders for the more distant deliveries has become a real one, particularly where novelty fabrics are concerned.

British Textile Trade in 1922

Good Year for Topmakers, Spinners and Hosiery Manufacturers —Piece Goods Patchy

(From Our Regular Correspondent)

BRADFORD, ENGLAND.

THE wool textile trade of Great Britain has fared a good deal better in 1922 than the majority of other industries. Topmakers and spinners have been busy throughout most of the year, and although the improvement in the manufacturing branch has been somewhat patchy, certain lines have sold exceedingly well. The hosiery and knitted goods industry has been exceptionally busy. Perhaps the best way of indicating the position is by saying that the percentages of unemployment (as revealed by the national insurance scheme) showed the following reductions between December, 1921, and November, 1922: Woolen and worsted industry 13.4 to 3.9; hosiery industry (including cotton and silk, etc.) 4.2 to 1.8; all industries 16.2 to 12.4. At the end of November, the number of employes in a representative series of firms in the woolen trade was 9.6 per cent. greater than in November, 1921, and in the worsted trade 12.2 per cent. greater.

The feature of the year in Great Britain, as in the world as a whole, was the extraordinary movement of raw material. The amount of wool sold in London, 1,284,000 bales, was the largest for twenty years; but when sales at Hull and Liverpool are added, the total is brought up to over 1,500,000 bales, which is a record for all time. Large quantities of this wool, of course, were exported, and B. A. W. R. A.'s offerings swelled the figure. The December returns are not available, but it is estimated that the total imports of wool, mohair, alpaca, etc., during 1922 will be about 1,160 million pounds, and the re-exports about 460 million pounds, leaving 700 million pounds retained. Of the domestic clip (roughly 100 million pounds), 60 million pounds have been re-exported, of which half has gone to the United States.

In normal times these figures would give the amount of wool retained in the country, which is approximately equal to the consumption when allowance is made for stocks. During 1922, however, there has been an abnormal factor in the shape of B. A. W. R. A.'s holdings. These, so far as they are situated in this country, have shown a net decrease on the year of about 90 million pounds, which must be added to the figures given above. The final result is that the balance of wool retained, plus the domestic clip and the net reduction in B. A. W. R. A.'s stocks in this country, is 830 million pounds. By the end of 1921 the trade was already carrying large stocks of cheap crossbreds, and there was some congestion at the railway stations. Stocks of merino wool were probably larger than they are now. In the aggregate no great difference in trade stocks between Jan. 1 and Dec. 31 seems likely, and consequently 830 million pounds must represent something near the actual consumption of wool in this country. In 1913 the corresponding figure was 633 million pounds, while the average for 1909-13 was 600 million pounds.

Increased Machinery Capacity

The latest figures for machinery in this country are for 1918, but careful estimates would seem to show that the increase has been slightly more than sufficient to balance the reduction in machinery capacity due to the 48-hour week in place of 55½ hours. It has been officially stated by the British Wool Federation, however, that combs are being run at an increased speed, which adds 15 per cent. to their output. In the case of spindles, the increased proportion of yarns absorbed for hosiery purposes involves an increase in the average thickness of counts produced, and consequently the weight of tops absorbed has grown correspondingly as compared with 1913. These factors would seem to account for the enlarged consumption of wool during a year in which part at any rate of the weaving branch has been slack.

In spite of the enormous movement of wool, prices throughout the year have shown an upward tendency, and in the aggregate finished the year at the highest point. Merinos, after advancing in a series of regular gradations, reached a point in the

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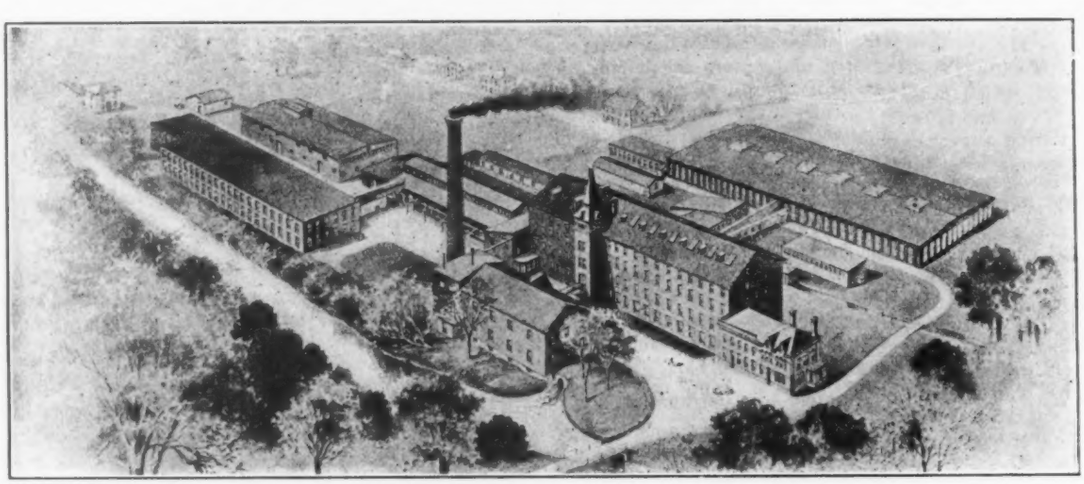

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autumn at which a further rise seemed to involve a definite restriction of demand; but they showed great stability nevertheless. Fine crossbreds moved in sympathy with merinos until toward the end of the year, when they continued to rise while merinos halted. Medium and coarse crossbreds relapsed in the summer, and B. A. W. R. A. had to curtail its offerings; but in the last three months of the year they shared with fine crossbreds a remarkably rapid and substantial advance, which owed not a little to the American demand.

Course of Values

The course of wool values is best shown by a few prices taken from the statistics of Messrs. Kreglinger & Fernau. They show London values for combing wool (first cost, clean, London, without oil):

Per pound in pence.	July, 1914.	Dec. 8, 1921.	June 9, 1922.	Dec. 15, 1922.
70s super fleeces.....	32	46-49	57	61
64/67s good med. fleeces.	30½	40-44	50	55
60/64s good med. fleeces.	30	36	44	50
56s fine crossbred fleeces.	26	23	26	36
46/50s crossbred fleeces.	18	15	14	23
36/40s crossbred fleeces.	15½	8-9	9	12

Between June and December there was a rise in medium crossbreds of over 60 per cent.

With regard to tops, the following shows the course of prices at Bradford for a few qualities:

In pence per pound.	Average, 1909-13.	July, 1914.	Dec., 1921.	Dec., 1922.
70s merino	28½	33	51	65
60s super	26¾	31½	42	56
56s crossbred	22	23¾	27½	36
50s crossbred	19	20½	22	26½
40s prepared	14¼	16¼	12½	15

The advance in values compared with the pre-war average ranges from 130 per cent. for 70s merino down to 5 per cent. for 40s prepared. The advance in wholesale commodity values generally in this country is a good 60 per cent., and qualities below 56s are well behind this ratio.

Compared with a year ago, merino and fine crossbred tops show an average advance of 30 per cent., and other crossbreds an advance of 20 per cent. In the case of yarns, the position is as follows:

Per pound.	Average, 1909-13. s. d.	July, 1914. s. d.	Dec., 1921. s. d.	Dec., 1922. s. d.
2/16s Worsted medium	1 6½	1 8	1 9½	2 2
2/32s Worsted medium	1 9	1 10	2 5	2 10½
2/40s (56s super tops)	2 6	2 10½	3 6	4 9
2/48s (64s tops)	3 0	3 3	5 7½	6 10
2/60s (super 70s tops)	3 4	3 5	6 9	8 6

These prices really reflect the movement in tops. Compared with before the war, margins have had to be raised, not only because of the increase in wages, but because of the abolition of child-labor.

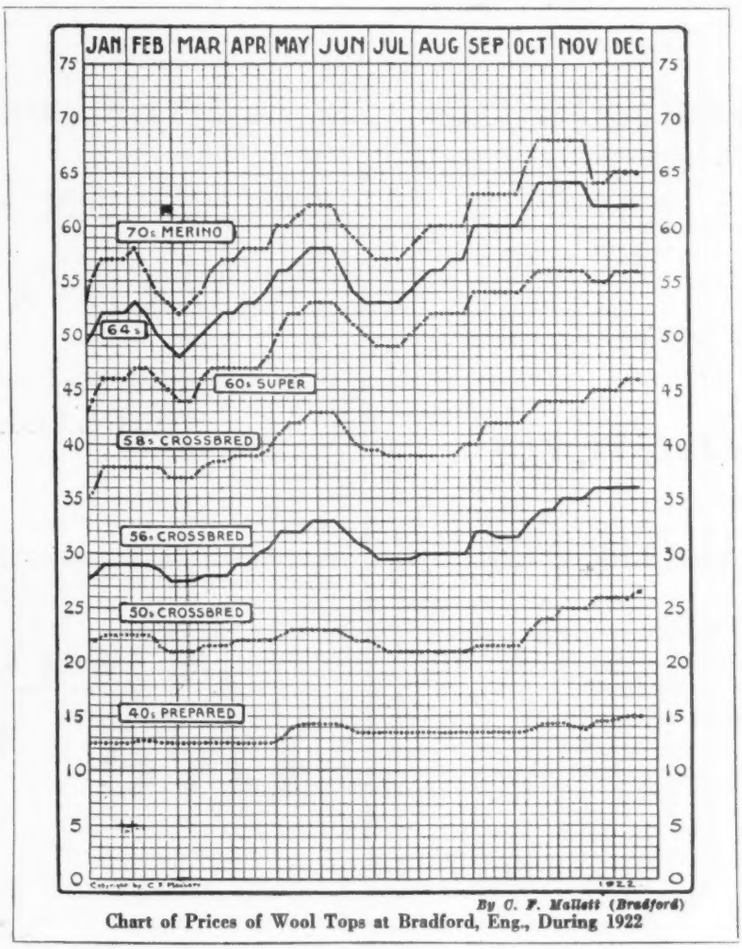
Home and Export Trade

The exports of tops had already recovered a good deal in 1921, and the recovery went further in 1922. The total exports for the year (December estimated) have been about 42 million pounds, which is only 5 per cent. behind the 1913 level, in spite of the fact that Germany has only taken slightly over 10 million pounds, against 16 million pounds in 1913. The exports of worsted yarns have been about 43 million pounds, 15 per cent. less than those of 1913. Again Germany has taken only 18 million pounds, against 29 million pounds in 1913. Alpaca and mohair yarns have shown a greater reduction; but woolen yarns were double the pre-war amount. In the aggregate, exports of yarn have been 80 per cent. of pre-war, but imports have been only 40 per cent., which has involved an additional demand on home machinery in replacement. Net exports were slightly better than in 1913.

The exports of piece goods were 180 million square yards, estimated to represent about 85 per cent. of the 1913 amount; but the imports of piece goods were only 13 million square yards, or 25 per cent. of the pre-war amount; so that net exports were fully up to the pre-war amount—a fine achievement. The takings of Japan about the middle of the year were extraordinarily large, while shipments to the United States, China, Scandinavia, Holland, Australia, and Canada bore comparison with 1913. Germany, however, took less than a twelfth of her pre-war amount, France only one-half, and Chile, British East Indies, and the Argentine less than a quarter.

The character of the trade may be judged from the fact that whereas in 1922 lightweight woolen tissues (under 12 oz. per sq. yd.) accounted for twice as much value as heavyweights, exactly the reverse was the case before the war. Again, in 1914, of the worsted tissues exported from Bradford to the States, over 80 per cent. were plain, and less than 20 per cent. fancy; whereas in 1922 less than 25 per cent. were plain and over 75 per cent. fancy.

This preference for lightweights as against heavyweights and fancies as against plain goods also dominated the home trade. Gabardines have been in excellent demand throughout the year, as have velours and fancy woolens and worsteds and the best tweeds. On the other hand, dress goods and the heavier coatings have been neglected.



By C. F. Mallett (Bradford)

Chart of Prices of Wool Tops at Bradford, Eng., During 1922

The Outlook

The outlook for 1923 seems to be a bright one. Two years ago the trade was handicapped by heavy stocks of piece goods and falling values, and there was a huge weight of accumulated wool in front of it. By the end of 1921, piece goods stocks had been very much reduced; and by the end of 1922 the problem of wool accumulations has practically disappeared. Only B. A. W. R. A.'s stocks remain as anything in the nature of a surplus, and they are less than 1,000,000 bales. The manner in which competition was maintained for wool right up to the end of the year showed that no excessive stocks were held in this country. No doubt a good deal of crossbred wool had been bought in excess of requirements, but the cheapness of these qualities led the majority of firms to invest spare capital in them. On the whole it cannot be said that wool stocks are too large, certainly not in the finer descriptions. There are few stocks of tops and yarns. In certain lines there are still accumulations of piece goods, but in other lines there is a quick turnover, and taking the country as a whole there is an abnormally light weight of goods held by distributers, retailers, and makers up.

For the time being the rapid advance in wool values has rather shaken the confidence of those who handle the finished goods. The broad facts of the wool situation, however, cannot be ignored. During 1922 there has been sold in excess of current production at least 1,500,000 bales of wool. During 1923 there will be only B. A. W. R. A.'s stock of under 1,000,000 bales to act as a safety valve. Merino values seem to have reached a point at which demand proves very elastic; but there are certain luxury purposes which require these wools, and as supplies during 1923 will probably be a good 20 per cent. less than in 1922, some one will have to take less. The German situation is not promising, and while in the first half of 1922 they were large buyers of wool, the reconstruction of their finances which seems in prospect will probably still further restrict their buying during the first half of 1923. Whether the corner will be turned next year cannot be predicted with any degree of confidence, because it depends upon political considerations. A very important factor, however, which balances Germany's reduced operations, is the re-entry into the world's markets of the United States. Again, the extraordinary demand for wool which has manifested itself during the past year has occurred at a time when the greater part of the world has been under a cloud of depression. Those clouds seem to be lifting, and increased trade means improving employment, more wages, and a greater need for clothing. It is also confidently expected that during the coming year Russia will be a reviving market.

Though merino values seem to have reached a sensitive point, the best Bradford opinion holds that they are sound, and that during 1923, though they are not likely to show any great rise of a permanent nature, they will fluctuate on a level at least as high as that now prevailing. Despite the recent advance, crossbreds are still relatively under-valued in comparison either with merinos or with commodity values generally; and with the disappearance of the last surplus stocks of wool during the next twelve months will also disappear any justification for the wide disparity which now exists. Hence it is confidently expected that the general trend of crossbred values, particularly for medium and coarse sorts, will be upward.

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Promising Outlook for Worsted Yarns in 1923

Strong Position of Wool, Increasing Consumption, and Scarcity of Skilled Labor Are Factors in Leading Trade to Expect a Good Year—Conflicting Influences Felt During 1922—Dominating Status of Raw Material Market Was the Most Significant Factor

CONFLICTING influences confronted the worsted yarn trade during the year of 1922. Facing on the one hand a continuous upward pressure from the raw wool market, with steadily mounting prices, there was a counter pressure brought to bear from the goods market for lower prices. As a result there has been at all times the constant problem: "Will goods go up or will wools come down?" Such a condition naturally developed a conservative policy until some definite assurance could be obtained as to what course would be best to pursue. As a consequence the year has been one practically free from speculative buying of any moment. Yarns were purchased for actual requirements for the most part, and as such have been steadily going into consumption.

It is interesting to note in passing, however, that while many spinners expressed dissatisfaction from time to time during the year with the amount of business they were doing, nevertheless, at the close of the year they were very much surprised and gratified over the results of the year's business. During the period from March to August, when trade was very quiet, there was quite a goodly number of spinners who appreciated the advantage of turning their lower priced wools into yarns for the demand which would come sooner or later, and therefore piled up moderate quantities of stock yarns. When this buying began they were thus in a position to deliver these yarns at gradual advances although still below prevailing wool replacement costs and by thus taking advantage of each rise in yarn values they were able to operate to much better profit than if they had sold earlier and at prices based on their original wool purchases.

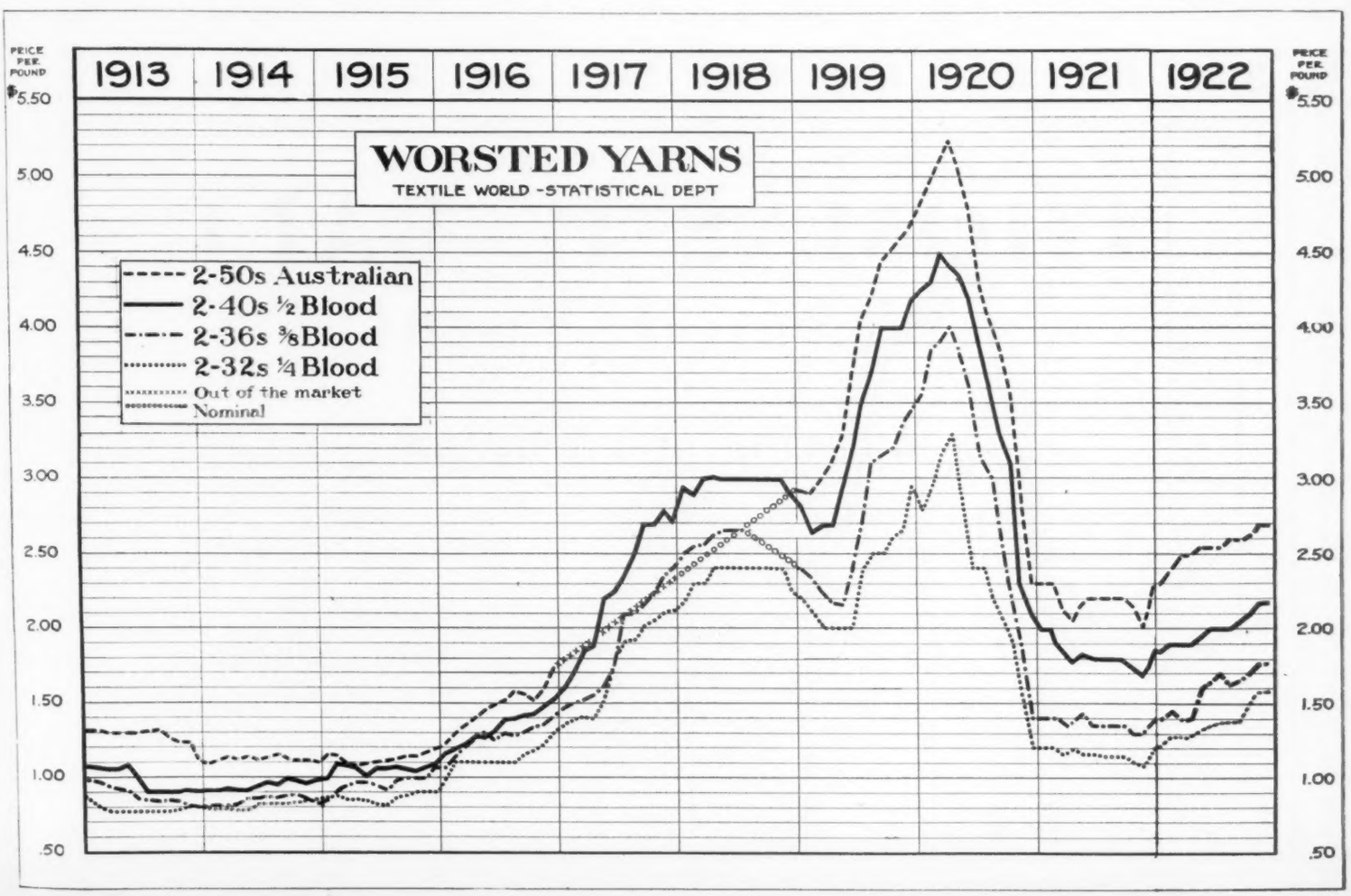
This condition also has been characteristic of the worsted yarn and goods market for 1922 in that both spinners and manufacturers at all times were operating at prices which did not approach replacement values, but were based upon earlier purchases at lower levels. For that reason at no time have yarn prices been on a parity with wool costs, as any effort in that direction would have served to cut off sales.

Dominating Factors

There were several important factors which played a vital part in shaping the course of the worsted yarn market during the year. Among these the dominating position occupied by the wool market was at all times a potent influence in strengthening the position maintained by spinners in their quotations. With gradually depleted stocks of domestic wools held at high prices, and correspondingly high values prevailing in the primary markets abroad, there has been little encouragement for spinners or other factors in their hope for a lower price basis. At this writing there have been signs of further strength in the markets abroad with prices there on a higher level than those which are noted in America, with the result there is little prospect offered the industry of a lower price basis on which they can operate.

Still another important factor in governing the policies of the industry was the delay experienced in securing final enactment of the new tariff rates, which only reached a conclusion in September. As a consequence the trade was forced to work at a disadvantage because of the uncertainties prevailing as to the future. As was to be expected, buying of yarns and goods was kept down to its lowest levels because of a desire to avoid commitments running into a period of new tariff rates. When the new tariff was finally enacted there was established at once a more stable basis of wool values so that business at once developed up until shortly before the close of the year when preparations began to be made for the new season.

In addition to these influences there was also the effect of labor conditions in the mills. During the preceding years of dull times, when business was dragging in the spinning and weaving mills, large numbers of the employes drifted into other lines of occupation. As many



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found these more remunerative than textile lines, they did not return to this industry when activities developed. As a consequence many of the mills have been seriously handicapped by a lack of skilled help so that production suffered, machinery standing idle which could otherwise have been operated, thus adding to overhead while it also reduced production materially. This is a situation which many factors consider a very serious problem and one which demands early attention so that some steps may be taken to assure the mills of a more abundant supply of trained workers by which their mills can be operated to their maximum efficiency and economy.

Stationary at Start

The close of 1921 found the trade more or less stationary, confronted by a strong wool market. The trade was inclined to be optimistic over the goods situation, although efforts were being made to secure fabrics at a price. The year just passed had been rather a disappointing one because the expected business had not materialized, so there were hopes for a better business, in spite of the fact advancing wool prices tended to restrict operations. Prevailing prices for the popular yarns at this time were $1.75 to $1.85 for 2-40s half blood, with 2-36s three eighths at $1.40; and 2-50s fine at $2.00 to $2.15.

With the opening of 1922, there was still noted a preponderance of the spindles engaged in producing knitting yarns. Many factors declared this trade was the main source of inquiry and business. There was no big business done on men's wear yarns, while dress goods were quiet. Advancing yarn quotations puzzled buyers, and the opening of the goods market proved a surprise to many. However, this tended to indicate a definite trend to the market, so manufacturers watched developments carefully. Prices asked for yarns failed to arouse any enthusiasm on the part of buyers, so results were slow. Those manufacturers who had courage to buy early in anticipation of their requirements occupied an advantageous position, and business developed conservatively.

It was estimated at this time that fully 40 per cent of the French spindles were engaged on hosiery yarns, so that this, with the business booked on weaving yarns, enabled spinners to operate on a fairly active basis. A double price range was also to be found, because of the offerings from those spinners owning lower priced raw materials, and those forced to depend upon current costs. This same condition prevailed with manufacturers who sold their goods based on their yarn holdings, and then offered new lines based on later costs. The number of spindles in operation gradually decreased as the market hesitated over the higher quotations based on advances in wools. In dress goods, novelty effects including tweeds, and something unusual at a price, were big factors.

The early spring found very little change with spinners still running on hosiery yarns, and new business almost at a standstill. Stock offerings were at all times a depressing influence, as these surplus yarns were quoted at prices below prevailing figures. Manufacturers therefore usually hunted for these lots when they desired any additional yarns. Business was so slow that it was asserted many spinners of men's wear yarns were operating only three days a week on a reduced schedule. There was not much use in pushing sales, and in May only 40 per cent of the worsted spindles were found in operation. Woolen spindles were in better position with 80 per cent of these active at this time. By this time, however, there was an improved tone noted with somewhat more business. The market continued to show an upward trend, but sales were still below replacement costs. Woolen lines continued to lead so that it was found many low combing wools were being broken up for carding.

With further improvement noted in the goods market, limited quantities of yarns were purchased from time to time. The new wool prices in the West indicated still higher yarn prices, so that manufacturers were caught between this situation and the demand for lower priced fabrics. Spinners in order to avoid checking business entirely were forced to average their wool costs in quoting on yarns. The dominating position occupied by wools was well demonstrated so that the market as a whole maintained a steady advance in spite of the absence of any real demand for yarns.

Tariff Uncertainty

By July, the market showed no real change in its general aspect. With the uncertainty of the new tariff legislation, manufacturers declined to anticipate their requirements in any volume, preferring to await the development of the lightweight openings. The prices named by the leading factor in the trade therefore were regarded as calculated to stabilize values, and to prevent any reckless plunging ahead. Mid-summer found no general movement and prices were rather easier in spots, with 2-40s noted below $2.00, although many asked over this figure. It was also asserted there was more business placed than generally known, and the activity of worsted spindles for this month was found to be 74.8 per cent. It was evident that a number of leading manufacturers had felt it was a good time to pick up yarns to advantage in view of rising wool prices, and this was said to have brought about this condition.

With the beginning of fall, French spinners were said to feel the lack of the demand for hosiery yarns which had proved such a prominent factor last year, so that their operations declined. A desire for business also developed variations in quotations. As it became apparent that some definite tariff action would be taken, interest broadened, and when the bill was finally adopted it was found to be a real stimulus to business. Buying therefore started and many manufacturers became bullish where before they had been decidedly the reverse. Many tried to place orders running into 1923, but spinners were chary of accepting business too far ahead. Both men's wear and dress goods manufacturers were operating with 2-36s three eighths at $1.65; 2-40s half-blood at $2.00 to $2.10; 2-50s at $2.40 to $2.42½. The report for September showed a total of 81.4 per cent. of worsted spindles in operation.

Active in October

October found spinners with a good volume of business on their books, and the market in a generally active condition although much of this business had been done at a price. Wool prices advancing tended to strengthen yarn quotations, although stock lots continued to confuse values somewhat. However, the limited supplies of wool, with the curtailed production due to a lack of help, were both stimulating factors. The advanced prices named on spring lines also proved a help to the situation. The development of an extensive use of three-eighths blood yarns was also marked because of an ability to bring out a fabric at a more attractive price. Many spinners found themselves unable to accept all of the business offered them on 2-36s, and from $1.75 to $1.85 was asked. In October it was found 89 per cent of the worsted spindles were engaged.

By November, however, the continued advance in prices began to check further orders in any volume as manufacturers were inclined to resist further advances in prices. However, spinners as a rule were well fixed with orders at a price, and therefore were not pushing yarn sales very hard, as they frequently found it difficult to meet deliveries as required. Yarn prices were being named at levels toward which buyers declined to show any interest, so that 2-40s sold out of stock at $2.15, with spinners asking $2.25 to $2.35; 2-50s sold at $2.60, with $2.70 and $2.80 quoted. Active interest gradually fell off so that there was only scattered demand for quick delivery.

The close of the year found demand almost at a standstill, as buyers were marking time until the opening of the heavyweight lines after the first of the new year. Spinners were well filled with orders running into 1923 so little effort was made to sell during this waiting period, as it was difficult to sell at the recent advances. Therefore sampling for the new heavyweights occupied much of the time with spinners making deliveries against the orders on their books as rapidly as possible.

Knitting Yarns Important

Knitting yarns have continued during 1922 to occupy an increasing importance in the spinning industry. The demands from these various lines at the opening of the year were such as to require a major portion of the attention of spinners in many instances. Spinners were able to show good orders on their books for at least three months, while the enormous consumption of hosiery yarns found some orders running to July. As a result the knitting branch of the trade continued in active condition during the early part of the year with sweater manufacturers taking their yarns with regularity and new business also coming in.

However, as yarn prices began to show advancing tendencies, buying was restricted until returns could be seen from the new lines being shown. Therefore there was a smaller volume of new orders booked. Interest was also shown in combination yarns for fancy knit goods, such as shawls, mufflers, cloaks, etc. These yarns included worsted blends with mohair, camel's hair and similar stocks for novelty effect. Hosiery yarns early showed a decline in active interest. Large contracts had already been placed, and as these lines began to slow up, buyers waited for further developments before purchasing additional supplies.

By April, new business was reported very slow, being largely of a filling-in character. Deliveries were well maintained, but with advancing prices interest became scattered. Buyers felt it best to move cautiously. A decline in the demand for women's sweaters was reported an important factor. With 2-20s quarter blood opening the year at $1.10, by May this yarn was held at $1.20 and $1.25. In June, there was a revival of interest with both sweater and bathing suit manufacturers taking yarns in good volume. Hosiery continued to figure in very limited fashion. Jersey cloth at no time developed into an active factor during the year. A big demand noted for bleached yarns for white goods produced a difficulty in maintaining deliveries on an equally balanced schedule. Novelty yarns continued to prove a big factor, with low South American 46s being used as imitation of mohair effects in a number of instances.

July found the demand for knitting yarns decidedly spotty, and concessions were reported on prices. During the summer months there was still a scattered business of moderate volume. Hosiery yarns were very dull, and the absence of this trade made itself felt in the French spinning trade. By September, with the passage of the tariff, business on these yarns also developed for sweaters and fancy knit goods, which have gradually come to occupy a more important position in the trade than ever. A good volume of business was reported booked and continued into October, with efforts made at times to extend these orders further into 1923 than spinners were willing to consider. Prices showed steady accessions so that 2-20s average quarter blood reached $1.37½ to $1.40.

There was a large use of mohair

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combinations as well as alpaca, camel's hair, and heavy yarns for astrakhan effects. Hosiery, however, continued to drag, while knitted fabrics likewise were not very active. Business was well maintained into November, with the result that spinners soon booked orders into February and March for deliveries. By December, however, after the volume of business done, buying slackened, as was to be expected, and the trade then began to await the results of the opening of their lines. While these were rather quiet for a time, the cold weather finally resulted in active sales of goods in the West, especially, so that the outlook was regarded as promising. At the same time, the holiday trade served to diminish the large stocks reported in worsted hosiery, so that more interest began to be shown in these yarns, for the new year.

The Future

While there is necessarily a certain amount of uncertainty as to the future effects of the higher prices which must needs be asked for both yarns and finished goods, nevertheless the trade generally approaches the new year with optimistic confidence. Naturally the strong worldwide position occupied by wool with firmly maintained prices in every market affords a strong and firm background. With the belated enactment of the tariff in this country, wool values have found a stable basis. At the same time, with the decrease in world wool production, especially in fine wools, the total being estimated at a loss of at least 250,000,000 pounds as compared with 1914, and with the increase in population and ever-growing demands of consumption, the effects of the law of supply and demand must be felt. In view of this condition, over which domestic trade has little or no control, it is declared there is every reason to look for well maintained firmness in yarn prices for the first six months of 1923 at least.

Furthermore, spinners with very few exceptions are all in a good position as regards orders. Contracts placed during the latter part of 1922 on both knitting and weaving yarns will run well into the first few months of 1923, and so confident are some spinners that they are willing to consider business which will run later in the year. It is pointed out therefore that there will be no reason to look for any price concessions. Besides this, the limited supply of trained help in the mills has also tended to curtail production materially in both yarns and goods so that with a normal demand there is little chance for any over-production which will depress the markets by its weight.

The possibility of a public resistance against the higher prices which must needs be asked for goods, has naturally caused more or less apprehension of a lack of any general business on goods. On the other hand it is pointed out there are quite a few factors which have tended to restore the trade to greater confidence. For example it is shown that with an average price paid last season of $1.30 for 2-36s the average this year would be nearer $1.80. This would mean an advance of 50c a yard provided the full 16 ounces were used. In the same manner, on 2-40s half blood, the average cost last season was around $1.65, while this year finds it more nearly $2.10, or an advance of 45c per yard on the same possible basis of 16 ounces to the yard. Naturally a favorable conclusion can be drawn when it is realized that the tendency has been to a demand for lighter-weight fabrics for all year use, with little distinction between the season's fabrics. With a relatively higher advance also noted on stocks used in the production of woolen lines, there are many who predict that advances in these fabrics will bring them up to within close range of the worsted goods, and this it is argued would throw the advantage to the latter fabrics.

Little Speculative Operation

Another important factor has been also the lack of any speculative operations in any branch of the trade on the rising markets. Buyers have been operating conservatively with the result there has been little opportunity for accumulations of goods or yarns in stock. Reports are also received to the effect that manufacturers of both men's wear and dress goods are doing a good business on repeat orders and duplicate lightweights which will run for some time into 1923. Therefore there seems to be little chance for any gap in the operations of the mills when the heavyweight season finally gets under way. It is also estimated that manufacturers of men's wear and dress goods are covered for about 50 per cent of their requirements, with dress goods mills as a rule covered further ahead than the former mills. In the knitting trade it is estimated that about 75 per cent of the season's requirements are under contract, although there is still a considerable quantity of yarn to be purchased.

The knitting trades likewise view the situation with confidence, and are predicting a good business in all lines. The cold weather has tended to move goods in good volume, and while there is naturally a conservative policy observed because of advancing prices, still manufacturers are said to be in good position. As a consequence there is a strong feeling of optimism throughout the industry looking for a good normal volume of trade without any elements of a boom. The effects of European conditions necessarily will play their part, but the extensive boundaries of our country, with its more than 110,000,000 population, well employed at high wages, are expected to furnish the demand which will allow the mills to run at a fair margin of profit for the first six months if not longer.

Steady Advance in Tops and Noils

Tops Advance Approximately 40 Per Cent. and Noils 70 Per Cent.—Continuance of High Levels Likely

A STEADY and continuous advance marked the year 1922 both for tops and noils. The year opened firmly on a low level and the year closed with equal firmness on a high level. Noils had a larger relative advance than tops owing to heavy demands made by the woolen industry and relative inactivity in worsted manufacturing. Noils as a class had a larger percentage rise than wools while tops lagged behind. The natural inference from such a situation is that in the year 1923, if the high level for wool is maintained—and such is the general belief—a further appreciation will occur in most classifications of tops.

During the life of the emergency tariff, covering practically the first nine months of the year, tops were imported in moderate quantity, while in July, there were large imports of fine tops from the Bradford market. The emergency tariff duty was 45c. per pound and the Bradford market as well as British exchange were at various times low enough to allow of successful importing. Top imports since the passage of the Fordney-McCumber bill have been relatively limited in volume. The emergency tariff duty of 45c. was prohibitive to noils, but large quantities were brought into bond and released under the new duty of 19c. per pound.

The noil market came to the end of 1922 in a good condition. A remarkably good business has been done over many months and ever since the first of the year prices had been on the upward grade for all qualities. Fine noils had an advance of around 60 per cent. and high quarter blood of around 95 per cent. It is now considered that fine noils have reached their top and while they may hold strong over buying coming in from approaching heavyweight season, it is not unlikely that it will be followed by softness and moderate decline. On the other hand noils of the low crossbred qualities were in much better demand in recent weeks and while they are quoted quite high, yet wools from which they are produced are advancing steadily.

Tops Opened Firm

The top market at the opening of 1922 was as firm as a rock. There was no inclination shown anywhere to shade prices. Ruling quotations were as follows: fine $1.25; half blood $1.10-15; high three-eighths blood 85-90c.; average three-eighths blood 80-85c.; low three-eighths blood 75-80c.; high quarter blood 72-75c.; 46s 65-77c.; 44s 44-46c.; 40s 40-43c.; and 36s 40c. The noil market closed the year 1921 confidently after experiencing good business throughout the entire month of December. Manufacturing trend in woolens was apparently opening up opportunities for larger consumption of noils whether of wool or mohair. Clean quarter blood noils had been climbing steadily upward for weeks. Manufacturers were willing to pay 32c. for choice parcels. These materials were finding extensive use in the manufacture of homespuns, tweeds and cloakings, and knitters also were fairly large purchasers. Choice fine noils hung firm around 50-55c.; half blood 45-50c.; three-eighths blood 35-38c.; quarter bloods 30-32c.; low quarter bloods 25-28c.

Top dealers predicted higher prices for quarter blood. Plenty of business was offered in fines but was not accepted, these commodities being peddled out by the top makers to their regular clients. The noil market was in an abnormal condition. The bulk of material available for trading purposes was limited. It was almost impossible for noils of any classification to be purchased except at advancing prices. Top makers having refused to take further business in fine tops, production of fine noils was rapidly diminishing. There was good mill demand for these commodities.

The situation about the middle of March was considered fundamentally sound. The noil market was, as a matter of fact, firmer than the wool market. The reason for this was not far to seek. Noils are a by-product of the combing of worsted wools and the worsted industry was less busy than the woolen industry, the chief consumer of these fibres. In such a situation noils ran contrary to the trend of the parent wool market.

Strong But Inactive

Tops grading down to 46s were a shade easier while tops grading from 36s up to 46s were a trifle higher. It was considered not unlikely that tops grading 44s and 46s would advance in price, inasmuch as the supplies of wool on Summer Street were running short, and top makers could not afford to take wools out of bond and produce tops even at best quoted prices. The top market was strong though relatively inactive. Some rather large sales of fine tops were made at $1.45. Much larger business was indicated if top makers had been willing to make price concessions. Some business was being done in low three-eighths and high quarter bloods at slight concessions from quoted prices. Top makers in view of short wool supplies were keeping prices firm and awaiting developments.

Near the end of April it looked as though certain interests were starting in and buying tops for speculative holding. Fine and half blood tops were active, medium tops less so, and tops grading 46s down quite neglected. The noil market was featured by a distinct shortage in all classifications. There was a fair demand and in addition the speculative spirit had again appeared with the result that the noil

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market reached the high level of the year with holders of choice fine noils asking 80c. The general level was as follows: Fine noils 75-78c.; half blood 68-73c.; three-eighths blood 60-65c.; high quarter blood 50-55c.; low quarter blood 43-45c. Colored and carbonized noils were inactive.

The top market was sold out in early May. Top makers claimed that they found it impossible to replace their stocks of fine, half blood and high three-eighths blood wools. The representative of a prominent house said: "We have never had such a situation in all our history. We have refused business totalling 1,000,000 pounds this week."

At such times stock lots of tops emerge from all kinds of unexpected places and are often of such qualities that under any normal conditions their sale would be difficult of consummation. Quotations at the time were considered nominal and based upon probable cost of wool to arrive from the West.

Crossbreds Advance in June

Tops were at a new high level for the year in early June largest advances being shown in 36s and 40s. The top market was still embarrassed by shortage of wool. Sales were made of high three-eighths blood at $1.10; high quarter at 90c.; 46s at 75c. and 36s at 60c. Prices were held firm, but spinners and manufacturers showed no disposition to follow prices up handicapped as they were to a considerable degree by an inert goods market. Foreign tops were coming in, bought by mills to arrive. The margin between imported and domestic tops was not sufficient to induce speculative buying.

The noil market was strong with materials scarce and fine noils ranging from 90c. to 98c. Other grades sold at high prices with choice quarter bloods quoted 65-70c. A slightly better movement in colored noils was noted, and there was also a moderate call for mohair noils, camel hair, both first and second recombing, and cashmere noils.

Top business took a turn for the better in August and combers were no longer making concessions in order to obtain further business. A leading top maker reported that quite a volume of business in fine was offered around $1.50, but had to be turned down. Top makers just got out about even, while spinners could operate only at a loss it was said. The wool market dominated the situation strongly and holders of the finer qualities of combing wools were making no concessions whatsoever. Fine and half blood tops were selling on approximately 118 per cent. basis as compared with scoured wool; three-eighths and quarter blood tops were selling on an approximate basis of 124 per cent.

Imports in July

The Bradford top market gained confidence in September, with 64s quoted at 58d. Imports of tops from the Bradford district for the month of July were valued at £40,000. These imports were mostly Australian 64s to 70s. The 80s early in September were landed here around $1.61, rising to $1.70. Current quotations for domestic tops were as follows: Fine territory $1.55-57; half blood $1.37-40; high three-eighths $1.15-17; average three-eighths $1.10-12; low three-eighths blood $1.05; high quarter blood 97c.-$1.00; 46s 75c.; 44s 65-67c.; 40s 60-62c.; 36s 60c.

The noil market held surprisingly strong in view of the fact that large importations of Bradford noils were now being released by passage of tariff at prices considerably under domestic quotations. These materials in general compared unfavorably with similar classification of domestic make. Many of the lots were good for carbonizing only it was said. Domestic quotations in spite of this inrush of foreign wools were stronger especially in crossbreds. Choice fine domestic noils sold to dealers at 90c.

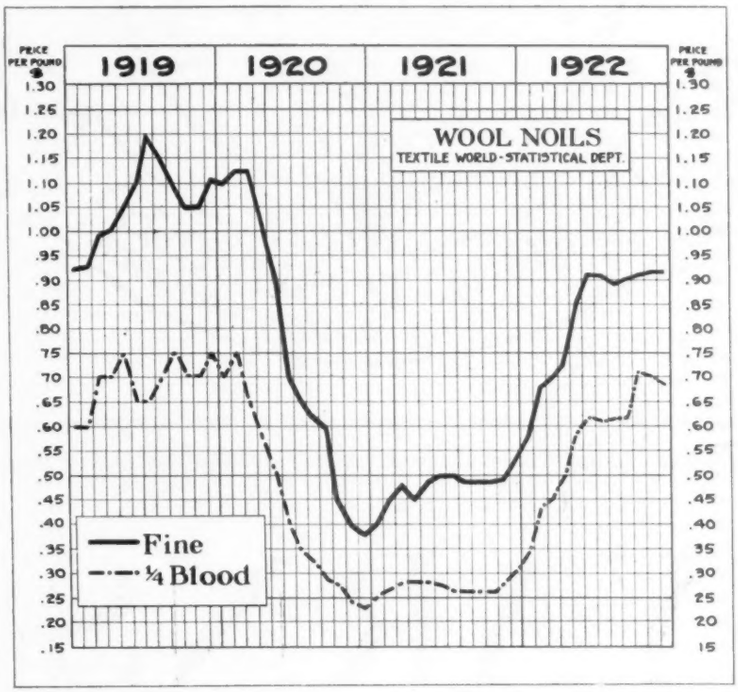
October brought the combers more business than they could take on. No price concessions were being made. Half bloods were particularly strong although no advances in price occurred. New business in this quality was accepted only after careful deliberation as to where the wool was to come from and at what price. It was a sellers' market, and it was questionable whether a single pound of half blood top would be accepted by a standard maker at anything under $1.45.

The noil market was adjusting itself to the new conditions brought about by the large inflow of foreign materials. For about 15 months this market had been entirely free from foreign competition, but the change brought about by the tariff reduction from 45c. to 19c. changed the situation materially. Domestic producers of noils were asking high prices. The larger part of the wool combed during the preceding eight months had been of the domestic variety which is practically free from burrs. Domestic noils, therefore, were generally esteemed of superior quality to those noils which are the by-products of the combing of low to medium foreign wools. Quotations for standard noils were as follows: Fine 90-92c.; half blood 85c.; high three-eighths 80-85c.; average three-eighths 75-80c.; low three-eighths 65-70c.; high quarter 70c.; 46s 65c.; 44s 58-60c.; 40s 50-55c.; 36s 45c.

Tops Jump in October

The top market took a jump forward as October came to a close. All grades of tops reached a high level for the year. Top makers had for some time been selling their commodities on the mean edge of things. They had not been making any money and had been hard put to obtaining wools at reasonable figures. They were now compelled to advance prices substantially. Fine tops were quoted $1.75, an advance of 10 per cent. approximately, and half bloods $1.60, a similar advance. The noil market was strong but without change. Underneath the surface certain lines of cleavage were forming. The line drawn between colored and light materials had been consistently drawn, with white materials tending to rise and colored materials sinking under the weight of neglect. A line of cleavage seemed to be forming at a line drawn through three-eighths blood noils. Some dealers believed that noils grading below three-eighths would be unable to maintain themselves at prevailing high levels under the pressure of foreign imports on the one hand, and larger output from domestic combing mills of crossbreds on the other.

The feature of the market in November was the strong advance made in domestic quarter blood tops which were lifted to $1.10-15 this advance was brought about by top-makers finding it difficult to obtain domestic quarter blood wools at a price that would enable them to quote tops at the old figure of $1.05. Fine and half blood tops still held to high levels but business did not come in quite so freely. On the other hand a quantity of business was offered in three-eighths blood quoted at $1.35-40. Even at the higher figure top-makers would not sell forward to any considerable extent.



September Noil Stocks

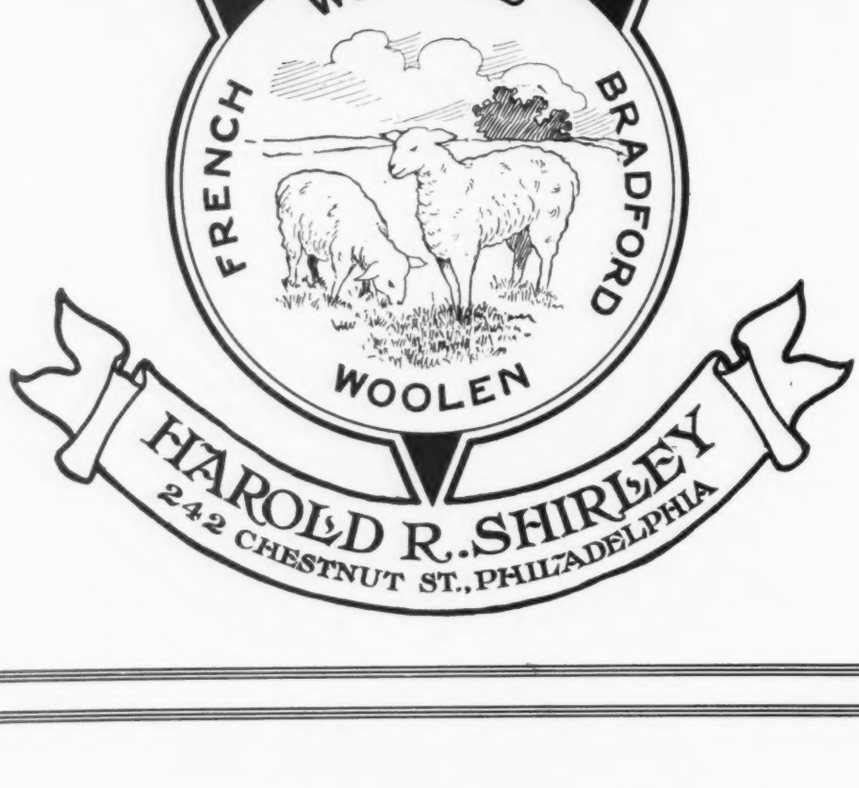
Noil stocks in the hands of dealers showed a gain of 1,000,000 pounds Sept. 30 as compared with June 30. This increase in the face of fairly good consumption was ascribed to imports. September holdings of dealers were distributed as follows: Fine 565,000 pounds; half blood 225,000 pounds; three-eighths blood 609,000 pounds; quarter blood 599,000 pounds; below quarter blood 377,000 pounds; carpet 289,000 pounds.

Combers in the last month of the year seemed to be of the opinion that fine combing had about reached the top. They did not look for much further advance in either the finer wools or tops. Prices were apparently holding up business on the finer grades. Top makers themselves were averse to overloading themselves with contracts at prevailing high level and were, it was understood, advising their clients not to attempt to buy too far ahead in these materials. Medium to low tops were exceptionally strong and further advances were considered not at all unlikely.

Combers were quite busy and well supplied with orders running well into the new year. The trend was apparently firmly established in favor of crossbreds. Spinners of knitting yarns were not able to pay the high price asked for domestic quarter blood and were piecing out, it was said, with 48s. These qualities had been importable until halted by the rapid rise in British exchange; and the fact that when the line of $4.63 was passed, the 20 per cent. ad valorem duty was assessed upon normal exchange tended seriously to restrict such imports.

The noil market at the close of the year was a routine affair. No particular trend was visible. Imported foreign noils had no influence at all in lowering prices, and while there were relatively large quantities of Bradford noils in the market, more particularly in Philadelphia, the by-products of domestic mills held up firmly and even advanced in choice materials. More interest seemed to be developing what might be termed specialty noils, with mohairs leading the procession.

The street was now busy taking inventory. Top makers did not anticipate any increase either in inquiries or in actual business until the New Year. Combers were busy enough at their various plants, some of them so busy that they had to place part of their work with one or two large mill organizations.



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Wools Steadily Advancing the World Over

Consumption in 1922 Greatly Exceeded Production, Which Continues to Decline—Rising Foreign Markets and Adequate Tariff Forecast High Wool Prices for 1923—Merino Demand Less Urgent with Increasing Consumption of Crossbreds on Rising Scale

THE end of 1922 found the wool market steady with bullish tendencies in complete control of the situation. The year opened much more hopefully than at the beginning of 1921. The entire movement of things was headed toward recovery and the wool trade shared in the fundamental optimism held in high places.

The wool situation was perplexing, but a problem more for dealers than for manufacturers. The manufacturers had the wools and the dealers were short; the situation is exactly similar at the beginning of 1923. Wool prices advanced steadily during the entire year closing at a very conservative estimate of 60 per cent. advance for all grades. The year 1923 will apparently be one of continued high prices with wools of the finer qualities likely to be stationary with crossbreds showing a strong upward tendency. Limited wool supplies the world over and the gradual return to normal manufacturing conditions in Great Britain and continental Europe, with continued good demand in the United States, are likely to maintain strong if not advancing prices in the primary markets of the world, while the operation of the tariff in the United States will furnish a powerful incentive to domestic growers to hold their wools for highest possible prices.

The American Woolen heavyweight opening in 1922 placed a curb on the excited trading movement then in progress. It was then said that independent manufacturers could not buy wool at the level prevailing and compete with the low prices named by the big company. Exactly the same statement accompanied the 1923 opening and the course of manufacturing events in the two years is likely to be very much the same—general good business for all.

The opening of the bids for the famous Jericho (Utah) clip demonstrated the strong advancing tendency of the market early in 1922. The high bid of 36½c. made by the American Woolen Company was turned down by the pool. At this time Utah wool which the previous year had sold at 15c. was on a 32c. level. The Jericho clip was sold later at 40c. and finally handed over to a large worsted organization at a dealer's profit.

In March 1922 contracting in the West had practically ceased. Summer Street did not feel that it could go ahead with operations not knowing the basis upon which wools would be placed by tariff action. Growers were elated over the situation expecting to market their clip at high prices. In 1921 domestic growers got less on the average for their wool than in pre-war years. In the years 1912-14 the average price paid was 17.3c.; the average price paid in 1921 was 16.9c.

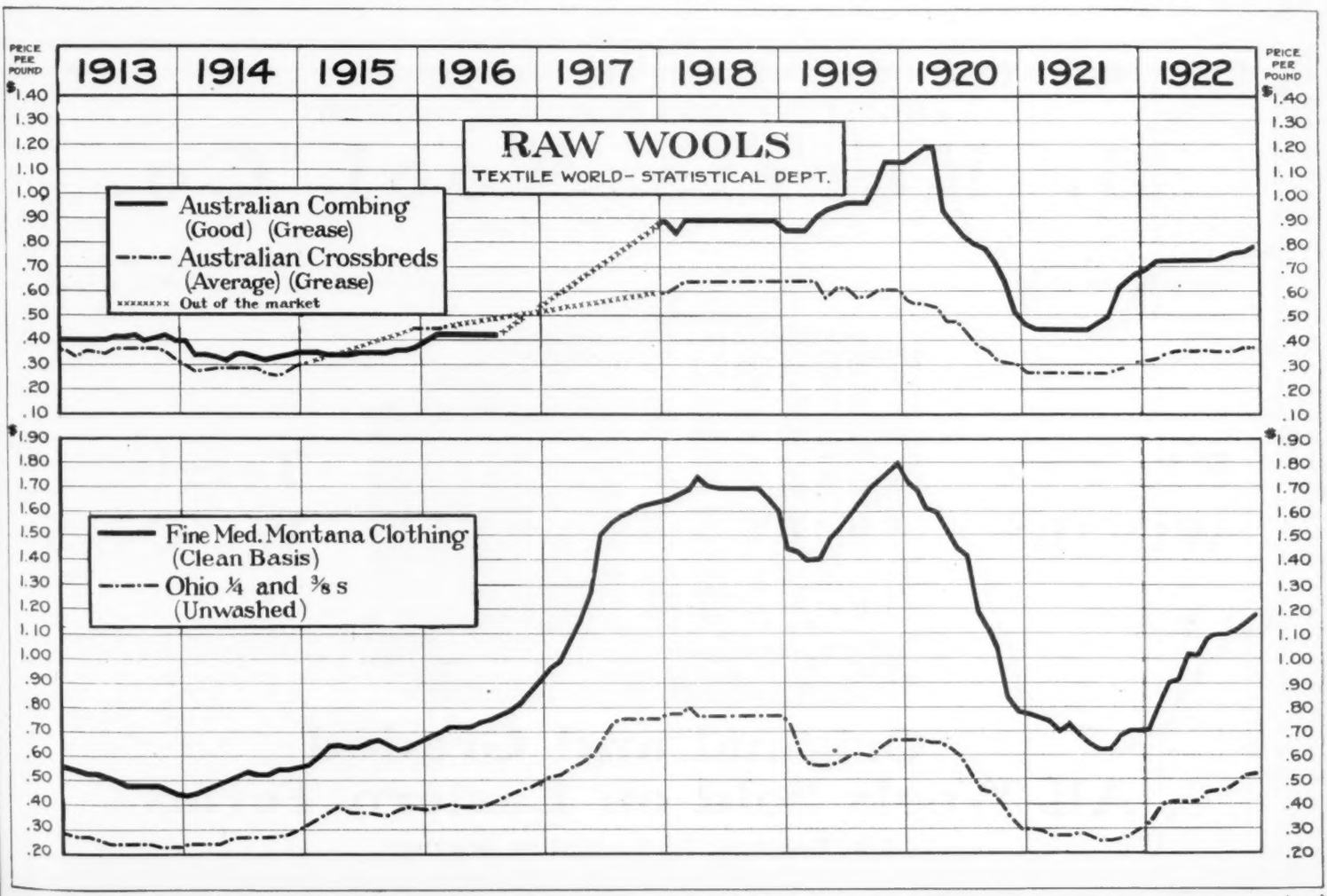
Government Control Ends

The final Government sale was held in March and largely attended, Government officials making a congratulatory speech marking termination of federal control. The sale lacked the snap shown at the preceding sale in February. Dealers expecting bargains were disappointed, Australian crossbreds all selling at advances.

Labor disturbances developed on a large scale in April in the wool city of Lawrence. The American Woolen Company was not affected owing to promise made by President Wood that no wage cut would be made that season.

The Boston wool market between the first of April and the middle of June had a vertical rise. Fine staple Montana, clean basis, rose from $1.08 to $1.33-35, an advance of 23 per cent. Fine clothing Montana, selling in April for 90c. advanced to $1.15, an increase of 25 per cent. In fleece wools the advance was less marked, Ohio three eighths bloods selling at 75c. clean rose to 85c., an advance of 14 per cent., which represented the general advance in fleece wools.

The midsummer market on Summer Street displayed irregularities in price as well as disturbance in sentiment over tariff prospects. A feature



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of the situation had been heavy and very general buying by manufacturers in the West and abroad. This had kept them out of the domestic market over a considerable period. To conservative merchants wools looked too much like a gamble with the wool tariff still undecided. Fine wools showed a slightly downward tendency while the tendency was reversed in the case of mediums.

Permanent Tariff Signed

The Fordney-McCumber tariff bill was signed by President Harding September 21, 1922 and became effective at midnight of the same day. The Emergency Tariff had been in force since May 27, 1921. The customs officials and prominent wool merchants, including an "importers' wool committee" worked harmoniously together to expedite quick release of wools required for manufacturing purposes. The new duty placed upon "clean content" was something altogether different from scoured basis and required exact scientific definition. The government defined "clean content" as wool freed completely from all foreign matter plus a regain of 13¾ per cent. After considerable discussion and long delay the Treasury department ruled that carbonized wools were to be included within paragraph 1106 of the wool schedule 11 as advanced beyond the washed or scoured condition and so subject to a duty of 33c. per pound and 20 per cent. ad valorem. Plans were formulated providing that an importer could take out 90 per cent. of his imports on shrinkage estimated by him leaving the remaining 10 per cent. with bond attached for later expert appraisal of actual shrinkage.

General Situation in 1922

The year 1922 was marked by two important events in the wool trade. The first of these was the ending of government auctions and the closing out of government wool control and the second the passage of the tariff placing the highest duty ever on wools, based on a new principle of 31c. per pound clean content duty which in operation places a duty of 15½c. on wools shrinking 50 per cent. increasing as the shrinkage decreases, until at a 25 per cent. shrinkage the duty in the grease would be 23.25c. The wool trade has now to adapt itself to a situation forced upon it by the new tariff which cannot fail to keep wools at a high level over a considerable period. Little relief can be expected from imports inasmuch as world production of wool has fallen away very considerably while world consumption of wool, with the exception of Russia perhaps, is returning to normal. Two other factors may be mentioned: the one a much larger relative consumption of medium wools and the other a steady rise in prices throughout the year for all qualities in the United States but with low crossbreds neglected on a low level in other markets of the world.

In view of the high level at which wools are now held it is a question upon which there are at least two opinions as to whether consumption of wool in the United States this year can equal the approximate consumption last year of 650,000,000 pounds. Wools advanced steadily during 1922 closing the year with an advance estimated conservatively at 60 per cent. The wool consumed over the course of the year might average an advance of 30 per cent. as compared with the beginning of 1922. Can manufacturing proceed successfully through the year 1923 commencing at an advance of 60 per cent. as compared with 1922 with the possibility of still higher prices? Can the public respond to such an advance, passed through all the lines of manufacturing, to finished clothing? In reply it may be said that general business conditions are much better and the buying power of the public for the year 1923 on the average, will be considerably higher than the average buying power of 1922. Best opinion, however, is inclined to believe that wool consumption in the United States may fall below consumption of 1922.

The immense stocks of Bawra melted away rapidly last year and the original stocks of approximately 3,000,000 bales have dwindled down to around 800,000, mostly low crossbreds. Crossbreds of all qualities are in much better demand than they were a year ago and by the end of 1923 it is hardly likely that Bawra will have much wool to sell.

Wool Consumption Jumps

World production of wool for 1922 is estimated at about 2,800,000,000 pounds, while probable consumption was approximately 500,000,000 pounds in excess of this figure. Taking it from another angle world consumption was approximately 5,000,000 colonial bales, a figure far in excess of the regular production of Australasia, the Cape and River Plate, and possible only by recourse to the stocks of wool held by Bawra. At the London sales alone in the eight series of auctions no less than 1,199,000 bales were sold, 429,000 bales being taken by the Continent and 41,000 bales by the United States, the balance by British buyers.

Should world consumption of 1923 equal that of 1922 a distinct shortage of raw material is indicated. This will most certainly be the case should the excessive demand for the finer qualities of wool remain the feature of manufacturing. The production on the whole is hardly likely to be larger in 1923 and the only visible surplus is that of low crossbreds held by Bawra. It might be expected under the stimulus of a high protective tariff that domestic sheep-growing would increase rapidly; but any such increase possible during the year 1923 would be practically negligible in supplying American needs or in affecting the general world situation in wools.

Australian Merinos Decline

The world production of wool has been declining over a number of years. It was not brought about by the war, though accentuated by the world strife with marked loss of production in Russia, and is likely to remain effective for some time to come. Not only is wool production failing to keep pace with world population but merino production is falling more rapidly than crossbreds. Australia, the chief merino producing country in the world, in 1911 produced 85 per cent. of merino and 15 per cent. of crossbreds, while in 1921 the production was 65 per cent. merino and 35 per cent. of crossbred wool.

The production of Australian wools has been decreasing steadily and the production of merino wools within the clip has also been decreasing. Comparing the year 1921 with the year 1910, the Australian Commonwealth shows a decline of 20 per cent. in its sheep. In the matter of pounds the decline is 12 per cent. only. Sheep and wool production since 1910 are as follows:

	Sheep	Wool
1910	92,047,000	721,298,000 pounds
1913	85,967,000	711,184,000 pounds
1916	76,668,000	547,702,000 pounds
1917	84,965,000	573,068,000 pounds
1918	87,986,000	683,190,000 pounds
1919	75,554,000	732,222,000 pounds
1920	75,000,000	657,439,000 pounds
1921	73,000,000	631,290,000 pounds

New Zealand production of crossbreds has kept steady over the last seven or eight years with an increase in the number of sheep during the war years of 1917-18. Statistics are not yet available showing actual conditions during the last year or two, but the probabilities are that in view of the large quantities of New Zealand crossbred wools held by Bawra the number of sheep in New Zealand has fallen away considerably. The following figures give the number of sheep in New Zealand over a number of years with the probability that at the present time the total would show little if any change as compared with 1910:

Year	Sheep
1910	24,269,000
1911	33,996,000
1912	25,750,000
1913	24,192,000
1914	24,961 000
1916	24,788,000
1917	25,270,000
1918	26,538,000
1919	25.511.000

Uruguayan Production Steady

Production of sheep and wool in South America following the world trend has been on the decline over a series of years. This applies chiefly to Argentina. The Uruguayan clip produces the finer qualities of crossbred and some merino. Comparing the season 1921-22 with that of 1914-15 an increase of 8 per cent. in bales is shown or of 13 per cent. in pounds, the bales now running heavier. Production in bales over the period is as follows:

	Bales
1914-15	104,000
1915-16	68.000
1916-17	88,000
1917-18	92,000
1918-19	114,000
1919-20	127,000
1920-21	105,000
1921-22	113,000

As to the 1922 season the clip is apparently short, estimates running from 90,000 to 100,000 bales, but definite figures are not yet available. Three-fifths of the clip has already been sold at advancing prices, the merinos at the beginning of 1923 costing to land, duty paid, approximately 2 per cent. under similar wool of domestic growth, but are now above par.

Argentine Wool Slump

The Argentine wool clip between the years 1914 and 1922 shows a decrease of 19 per cent. in bales or 15 per cent. in poundage. Production of wool for eight years has been as follows, the season running from October 1 to September 30:

	Bales
1914-15	330,000
1915-16	332,000
1916-17	364,000
1917-18	391,000
1918-19	372,000
1919-20	370,000
1920-21	319,000
1921-22	266,000

The 1922-23 Argentine clip has been the subject of wild rumors as to shortage, some estimates running as low as 235,000 bales. Statistics are not available, but the probability is that it may total somewhere between 280,000 and 300,000 bales.

British Production Declines

British wool production has also been on the decline over a period of years. As compared with the year 1910 wool production for the United Kingdom in 1921 was off 28 per cent.; as compared with 1915, off 17 per cent. June 1922 census showed slight improvement. The year 1923 is expected to show further gains. The average weight of a fleece, however, has apparently been on the decline, averaging 4.6 pounds in 1910 and 4.2 pounds only in 1921. Number of sheep and estimated wool production since 1910 are as follows:

	Sheep	Wool
1910	31,164,000	143,000,000
1915	28,276,000	122,475,000
1916	28,850,000	124,408,000
1917	27,850,000	125,176,800
1918	27,063,000	119,736,000
1919	25,048,000	116,658,000
1920	23,329,000	104,320,000
1921	24,161,000	101,100,000

U. S. Production Declines

Wool production in the United States has fallen rapidly during the last decade. Comparing the year 1921 with the year 1910 there is a decline of 31 per cent., equivalent to an actual loss of 103,546,000 pounds. Total number of sheep in the United States show a similar loss of 31 per cent. falling from 52,448,000 in 1910 to 36,327,000 for the year 1922. Number of sheep Jan. 1, 1923, is given as 37,209,000. Average yearly output of pulled wools over the period is around 43,000,000 pounds, but in 1921 pulled wool production was 48,500,000 pounds. Sheared wool production for period named is as follows:

Years	Pounds
1910	328,101,000
1911	321,362,000
1912	318,847,000
1913	304,043,000
1914	247,192,000
1915	248,777,000
1916	244,890,000
1917	245,373,000
1918	257,921,000
1919	265,939,000
1920	259,307,000
1921	224,564,000

Statistics covering the clip of 1922 are not yet available, but the general impression is that the clip will be very little if any larger than that of 1921. Under the stimulus of a high tariff it is quite likely that the domestic growers will pay more attention to

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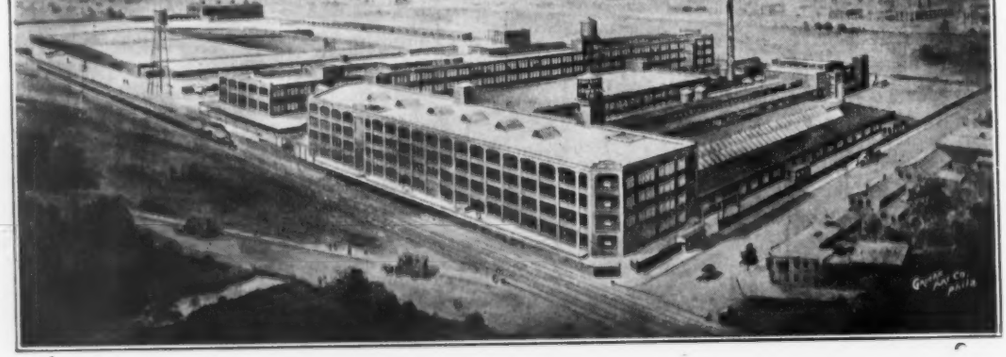

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sheep raising for wool. The pressure of various associations, not to mention government assistance in the way of financing as well as of enlightening the grower as to the best methods of preparing his wool for market, are likely from now on to lead to an increase in the wool production of the country; but as land is becoming more expensive all the time, and as the United States is gradually passing from the pastoral to the industrial stage of society, it is hardly likely that the relatively large wool productions of pre-war years will again be seen.

Cape Production Promising

South Africa is apparently the only large wool producing country in the world that has not declined in volume during the last ten years. In the Union of South Africa in 1913 there were 35,711,000 sheep and in 1922 35,092,000. Farmers there are realizing that improved methods of production are profitable and the general management of the industry is becoming more efficient. It is said that a large conservative element of farmers, however, still remains to be converted to the advantages of modern wool-growing methods. The average weight of the fleece in the Union is approximately 6 pounds. The Department of Agriculture recognizes that there are great possibilities for the expansion of the merino sheep industry and are urging that every effort should be made to increase production.

Limited Bawra Stocks

"Bawra" wool stocks as of Dec. 31, 1922, compared with the previous year are as follows:

	Stocks and afloat— Dec. 31, '21	Dec. 31, '22
Australian—	Bales	Bales
Description—		
Merino combing.....	308,048	60,567
Clothing	67,399	5,971
Carbonizing	44,070	7,267
Totals, merino.....	419,517	73,805
Crossbred—		
Combing, fine, 50/58/60s.	331,380	170,000
Medium, 44/46s	121,569	95,000
Low, 40s and below..	55,965	38,000
Clothing, fine, 50/58/60s.	51,138	36,000
Medium, 44/46s.....	32,870	22,000
Low 40s and below...	19,641	12,000
Carbong, fine, 50/58/60s.	84,166	63,000
Medium, 44/46s	45,985	34,000
Low 40s and below...	13,353	10,000
Totals, crossbred ...	756,067	480,000
Grand totals, Australian	1,175,584	553,805
New Zealand—		
Merino	2,732	2,000
Crossbred, bulk combining—		
Fine, 56/58s	17,221	9,700
Medium, 46/50s.....	149,197	85,000
Low, 44s and below..	211,465	121,000
Slipes	126,282	73,000
Secured	127,255	67,000
Grand totals, New Zealand	634,152	357,700
South Africa.....	80,652	.....
Grand totals.....	1,890,388	913,000

Note.—Last total does not check, as stocks are given to the nearest thousand.

Fair Year in Waste and Fibres

Worsted Mill Wastes in Active Demand—Light and White Substitutes Move Freely

THE re-worked wool industry had a rather unsatisfactory year in 1922. Commencing in January with great expectations, at no time during the year were these expectations realized. The industry has been remarkably one-sided. Its production in the main has been confined to light and white colored materials, and, although prediction has been made from time to time that a change was to occur in this particular, nothing materialized right up to the end of the year.

It can be said, however, that recovered wools are in a much better position to secure good business than they were at the beginnning of 1922. Their materials, whether rags or processed products, have advanced somewhat, but the wool market, its by-product and mill wastes, have risen so rapidly and extremely as to leave reworked wools far behind. From a competitive standpoint, recovered materials are in an excellent position, and it would seem as though manufacturers of woolen materials, such as blankets, felts, overcoatings, certain types of hosiery and clothing fabrics generally would find it to their interest to utilize recovered fibres in much larger proportion. This is likely to take place, but the one uncertain feature is whether dark colors will continue to be neglected.

Wool wastes had a remarkably good year, though, as in the case of substitutes, colored sorts were greatly neglected. Fine materials particularly cards and threads, were in good demand, and at advancing prices following closely the rise in fine wools.

Effect of Emergency Tariff

Both sections of this market, fibres and wastes, had to contend for the first eight months of the year with a high emergency tariff and for the balance of the year with a modified though still high tariff on wool wastes.

The chief feature for the first eight months of the year was the large importation of worsted thread wastes. The framers of the emergency measure, putting, as they did, prohibitive duties on wools, their by-products and wastes, somehow or other overlooked thread wastes which were on the free list. These materials have high manufacturing value, and, as the Bradford market throughout the year was relatively low and British exchange also at a low level, these factors coinciding with an excellent demand for this material led to large imports. The Fordney-McCumber tariff, by placing a duty of 16 cents per pound on these commodities has brought importing down to very moderate proportions, made even more so by the recent rapid advance in British exchange.

The joker in the bill from the standpoint of substitutes was the placing of rags on the free list which resulted in very large importations of white and light colored materials; an advantage no doubt to substitute manufacturers and woolen mills, but bringing about an almost complete cessation of rag grading. In the Fordney-McCumber tariff rags now pay a duty of 7½c. per pound, and imports have practically ceased.

In January, 1922, re-worked wool manufacturers impressed by the strength in the wool market were beginning to realize that should the Emergency Tariff remain in force another six months manufacturers would be placing good orders for recovered materials. Outside of this hope for better things and the probability that they would materialize, there was little on which to build. The amount of new business coming in was painfully small and quite spotty, some plants relatively busy, while others were almost completely idle.

The rag situation was without change. Slight fluctuations in the price of cloth or softs did not affect the general situation. The cost of grading rags had been constant for some months and was likely to remain so, and until there was a general demand for graded materials graders would hardly find it profitable to throw into temporary discard 60 per cent of their rags in order to offer woolen mills and substitute manufacturers the 40 per cent desired. Hosiery and shirting manufacturers were placing limited orders for fine colored stocks made from merinos and serges. The market was hoping for really good business to materialize when the showing of overcoatings was over, and believed also that woolen suiting openings would bring in business.

Fine worsted threads tended to advance. A large parcel of fine Bradford was sold at 56½c.; quotations ranged from 55 to 60c. One importing house sold the entire January production of a Bradford mill. The fact that these commodities were on the free list was a strong incentive to buyers.

Awakening of Interest

The Publicity Committee of the National Association of Wool Fibre Manufacturers reported a great awakening of interest on the part of educational institutions and large retailing houses in various parts of the country. The committee prepared sets of samples, showing recovered fibres, also fabrics constructed therefrom, and arranged for experts conversant with the industry to give talks in various places explaining the technical relation of recovered fibres to the general wool textile industry.

So far as it could be ascertained, there were no large stocks of graded rags available. American graders had been doing practically nothing for several months. Some wide-awake organizations were beginning to import choice graded materials from the Old World, rags being on the free list. Fine light merinos in good bright colors were imported around 16c., a cent or two under our market. Under normal conditions the United States exports considerable quantities of old rags. In 1920 for the first 11 months 14,525,745 pounds were exported, valued at $2,711,294. For the first 11 months of 1921 exports totaled only 1,795,767 pounds, valued at $190,012.

Improvement in March

In March the situation was showing a slight improvement. The wool situation was regarded as fundamentally favorable to a larger consumption of wastes, by-products and recovered fibres, the latter particularly on account of their low price and availability in large volume. White wastes, both fine and medium, of whatever classification, sold with comparative ease. Colored worsted wastes of the finer varieties moved more freely. Imported Bradford white threads sold at 68c., and domestic and foreign garnetted fine wastes from 75c. to 80c. Fine white card wastes were in good demand, quotations ranging from 43c. to 45c. for choice parcels.

The situation in graded rags showed no improvement. To grade rags on the basis of limited demand was an unsatisfactory if not a losing proposition. The rag dealer could not afford to have his capital frozen up in grades for which there was no market and might not be for months. A tendency to softness in price was still visible, as was also the general inability as well as disinclination on the part of graders to sort out a lot of material and freeze up a lot of credit in order to meet the limited mill demand for light and fine materials. The whole situation continued very perplexing, but fundamentally more favorable than otherwise to this industry. Rough cloth had moved to lower levels and mixed softs were barely firm. As to graded materials, they were not obtainable in quantity.

At the beginning of the year it seemed that the turn in the tide had come, but unfortunately by the middle of April it had ebbed again. Reworked wools held firm even though basic rags were soft. The industry, however, was pretty near bedrock. Little if any inflation was left; raw material was near a pre-war level, and finished products not much higher, when the increased cost of everything else was taken into consideration. Worsted mill wastes were steady with a tendency toward larger activity. Woolen wastes were quiet, especially the colored sort, but for clean white wool waste there was a broader demand from felters, as well as from certain woolen mills.

The importing situation became less favorable around the end of June. A change came over the foreign situation, and with British woolen manufacturers using larger amounts of their own rags, and with the British pound sterling up to $4.50, importing was less easy and altogether less profitable. The woolen industry in West Riding of Yorkshire was not over promising, but had one relieving feature in the development of export business both in rags and processed materials. Buying of rags for the American market had taken considerable quantities out. In April, 1921, 114,650 pounds of rags were import-

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ed; for April, 1922, no less than 1,000,000 pounds.

Situation in July

Early in July substitute plants were still working almost entirely on light and fine materials and mostly carded instead of picked. This gave an artificial appearance of activity to recovered wools. The pickers of the industry which account for large production were employed to only a limited degree. The industry was broadened slightly by the inclusion of brown knits and khaki. Dark materials were distressingly dull. Fine dark merino, for a long time one of the cheapest stocks on the market (6-7c.), was moving, big packers picking up cheap lots. Graders complained of adverse conditions. Prices generally were holding firm, but mills were refusing to consider purchases owing to change of season. The heavyweight season was nearing its close. Factors in close touch with the rag situation as related to woolen mill consumption stated that some business might be expected in the near future. The rag market was broadening, softs selling up to 6c. in places. Rough cloth, however, was stationary.

Wool wastes continued quiet, without change in prices, although the tendency of the scarcer stocks continued against buyers. This particularly was true of fine worsted card wastes and of fine thread wastes. The advanced prices demanded for fine threads stimulated half blood, causing prices of the latter to harden. For fine worsted threads 80c. was the bottom of the market, and 85c. to 90c. was asked for choice quality. For fine white card waste 58c. to 60c. was generally asked.

Situation in September

The outlook in September seemed brighter. When wools are high, recovered wools generally have their share of the textile business. Wools were exceedingly high compared with recovered materials, which were not far from the bottom in their basis collections. The expectation of better business for this market was based upon a permanently high wool market on the one hand, and no competition since the passage of the regular tariff from imported rags and fibres on the other. A peculiarity of the new tariff lies in the fact that low wools used for the cheaper class of clothing pay a much higher relative duty than the fine wools used in the best fabrics. All of this, it was considered, ought to work out to the advantage of the recovered wool industry, which could offer all grades of fibres, as well as shades, at reasonable prices.

Outlook in December

Even at the beginning of December no material swing to larger consumption of recovered wool was visible, but the mental drift was in that direction. Woolen manufacturing was getting busier and so also was worsted manufacturing. These two branches of the industry are always in sharp competition with each other. To compete with worsteds, woolen men, it was said, would have to cheapen the high cost of their raw materials by a rational use of recovered fibres. The outlook for rags and their processed products was considered better. Rag prices generally were tending upward. The changes from day to day were very slight, but accumulations of a number of minute changes over a month or six weeks became noticeable. There was also some speculation going on in dark-colored rags.

The rag market was developing a fair amount of confidence. Cloth and softs attained a good stability at 2c. and 7c. respectively. On this foundation prices could move upward; they had, as a matter of fact, moved up in some sections as high as 2¼c. and 7¾c. having been paid for good packing. There was a good demand for white softs, quoted 35-36c., with the carded material selling 48-50c. The National Association of Waste Material Dealers protested the payment of 7½c. per pound duty on linsey rags, which are used chiefly for paper-making purposes. The protest was allowed.

Substitute and Wool Consumption

All kinds of ridiculous statements were made by virgin wool advocates regarding the overwhelming position occupied by recovered fibres in this country, but Government report covering the year 1921 showed that the total production of recovered fibres amounted to only 27,205,000 pounds, whereas the wool consumption of the year was around 550,000,000 pounds. The rag business during the course of 1922 does not show up nearly so well as the recovered wool industry. Large quantities of foreign rags were imported for the first eight or nine months of the year, removing that amount of business from the American grader. Importers, of course, made their profits on such business, but grading operations which under normal conditions constitute the backbone of this industry were sadly neglected. The normal will now displace the abnormal and ultimately this country will export rags instead of importing them.

During the pre-war year, 1914, 70,946,000 pounds of recovered wool fibres, or 18.7 per cent of the total clean wool that the country consumed, went into the manufacture of fabrics. In the year 1919 57,191,000 pounds, or 16.4 per cent of the total, was utilized in woolen manufacture. Comparing the years 1914 and 1919, the tendency for woolen mills to depend more upon recovered wool plants is evident from a study of the census report. In 1914, of 18.7 per cent of recovered wool fibres utilized, 10.8 per cent was made in the mills themselves, while in 1919 only 5.8 per cent was made in the establishments using the material.

Improvement in English Substitutes

Good Demand for Export Helps Factory to Recover from Unusual Depression of 1921

(From Our Regular Correspondent)

DEWSBURY, ENG.

IN reviewing the trade of this particular branch of the woolen textile trade in 1922 one is bound to admit that it has been decidedly better than during the previous year. Work has been more general on the average and more employment has been found for the workers. Business generally opened out during the first two months and by the middle of February in most cases mills were working full time, and in a few particular cases at night also. During the fall of 1921 the prices of most qualities of wool were at a low ebb, as also were noils and wastes, and not a few mills planned for the production of all wool materials in various qualities and for a variety of purposes.

During the year some mills have worked a good deal to stock. Owing to the low price of raw materials generally during the early portion of the year they did so with a certain degree of confidence. Quite recently they have been able to dispose of these stocks and now face the coming year with practically empty warehouses and increased confidence.

Raw Materials

In raw materials the year has been fair to good so far as substitutes have been concerned. At the opening of the year stocks were heavy; the accumulations of graded material of all kinds were very large, indeed, until dealers were in a difficult position. Financing these accumulations was a serious problem, especially so with those who had been caught when prices fell. Work was carried on two or three days per week only, but early in the spring the demand from the United States set in, and slowly but surely its effect became most marked.

One line of stock after another was in demand, and especially in white and light shades of soft stock in the shape of knitted and flannel materials; also merinos. From the month of May until the end of August there was an abnormal demand for most of the grades in stockings, both fine and coarse, all kinds of flannels and some lines in merinos. New stock also participated in the move and all kinds of hosiery and sweater cuttings, coupled with worsteds and serges and not a few light cheviot materials, were shipped.

In fact, so large was the demand for almost all the better classes of British stock that in the first nine months of the year well over three-quarters of a million sterling worth of woolen rags was shipped from this country to the United States. Such a drain has had its effect, and during the last three months the result has been experienced in this market. After these shipments were stopped by the coming into force of the new tariff, prices eased off somewhat, but not to any marked degree, and not as much as was expected. An unexpected call came from certain centres of the woolen industry on the Continent and from some of the local mills, and they began to operate in several lines that had been shipped to the States. But the damage had been done and the stock was not in the market. Today prices for quite a number of the articles taken for the American mills are higher than at any time during the last year, and with not the least prospect of any reduction for some time to come, as the demand still continues for these particular articles.

Another factor which has complicated matters has been the steadily increasing demand during the year from pre-war markets for shoddy of the better class lines, and as wool has slowly increased in price, so has the quality of substitutes with which it is used. More shoddy has been exported during the last six months than during the previous year and a half.

Price Movements

The unfortunate part of the business is the fact that there has been but a very meagre call for mungo stock, rags yielding a short staple when pulled, and today there are large accumulations of all kinds of new and old cloth materials. Best tailors' clips are very scarce and dear, while medium grades cannot be sold unless at ridiculous prices. New worsteds of all kinds have improved in price during the year. Blacks and blues are dearer by two to four cents per pound, Oxfords about the same, while fancies are about half that increase. Serges in blacks and blues are also considerably dearer, while merinos appear almost to have gone out of the market, especially blacks. Cheviots have had a sale at a price, but unless in Oxfords or blacks have not materially advanced in price, owing to large accumulations.

Skirted materials have had a hard time, but few qualities having been asked for, and then only a few worsteds in self colors; recently these have dropped out. Old merinos have more than maintained their price, while stockings are much dearer. In fact, it is now impossible for graders to secure any profit in grading them and most of the business today is from hand to mouth and extreme caution is the rule. There are, however, inquiries to hand from certain overseas markets, also from local mills, for a good number of lines. The coming of the new year is anticipated with not a little confidence, and especially so where price is concerned, as scarcity generally will have a tendency to keep them on a firm basis. After the end of the winter term larger quantities of mixed stock will be forthcoming which will benefit all concerned.

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Raw and Manufactured Silk Review

Last Year a Successful One in Broad Silks

Despite Antics of Raw Silk Prices Activity Was Present—Crepes Have Heaviest Sales in Years—Prints, Deemed to Be Overdone, Came Out as Leaders—Constructive Factors Accomplished the Most Unexpected —Trade Optimistic as to Outlook for 1923

BEFORE beginning a review of the silk goods market for the year 1922 it might be well to look back thirteen months to the condition of the market at the close of 1921, which was a memorable year for all sellers, most of whom, while they did not sustain great losses, nevertheless, were justified in feeling they had been through a most trying period. However, better times were in store for these factors, as the events of the past year have proven. In short, 1922 was a successful year, with nearly all operators in the trade coming out at the close in considerably firmer standing than that which marked the close of the previous year. It was an eventful twelve months, opening as it did on the heels of a fall season in which business had been in the doldrums, following a spring and summer season which had been busy though not over overrushed.

Of course, it must be remembered that this quietness only reflected what was in the air in the foreign centers where trade in silk had not assumed healthy proportions such as it is experiencing today. As a result of this condition the markets of the world at the opening of 1922 were well supplied with stocks sufficient to carry them over for long and extended periods. However, once an atmosphere of recovery became general it was soon widespread and this market in particular began to take on an air of prosperity such as had not been seen or even thought of in two years. Its quality has been lasting and throughout the entire year confidence existed—even to its final days, when none but replenishment business for retailers and the like took the attention of these operators.

Consumption Improved

Compared with 1921 the year just closed was a literal paradise for sellers in the silk field. In that memorable year, stocks were plentiful everywhere. Mills were closed down and the inactivity of the market was but a true reflection of what was existing in all lines throughout the entire world. But early in 1922 business prospects cleared and better times began to make themselves felt—they have been with us in greater degree from that time up to the present. Stocks were gradually used up and the idle wheels that had been standing for months began to turn and activity returned to its proper place in American life.

Optimism Aided Market

The worst that had been known in the silk market in years was over and 1922 entered upon a twelve-month period that is history and has made exceedingly good reading. True, the year had its dull periods, but these have come at the times expected and have given way to much better ones. With the new year came optimism on all sides and those factors were few and far between who expressed themselves as dubious regarding the year's course.

With this optimism came constructiveness, and manufacturers on every side brought new goods into the market intended to appeal to the consumer, from a standpoint of service, style and price. Looms have been kept busy and despite the course of the raw silk market, business has been admitted to be on its highest plane since the close of war days.

Advertising, that big factor in American business today, is one of the important things that has tended to bring success to the year now closed. It may safely be stated that silks were advertised in greater volume during 1922, by both factors and retailers, than at any time previous. The desirability of silks was given a great boost during the days when everyone made money and that they have never lost their position goes without saying. Furthermore, they have come to the position where they are placed, at least so far as price is concerned, within the reach of all who desire them. Wage-earners are, for the most part, earning and receiving more for their services than ever before, with, of course, the exception of war days. Considering all conditions, silks today are more within the reach of all than has ever been the case.

Adversities Present Also

But in considering the year 1922 there are also adverse factors that must be reckoned with; factors that compose the pitfalls and make the way of progress hazardous. Chief among these was the raw silk price, which during the year performed in a manner unbecoming an otherwise well-behaving factor; prices have literally gone sky-high and from many quarters have been heard predictions of dire results, sure to follow unless the antics of that end of the market were not curbed. Prices for the finished product, it was stated, would have to be raised to a point that would prove prohibitive. However, the raw product continued to soar and there were those who looked to see nine-dollar silk before the close of the year.

Raw Silk Factor

Though it did not reach the above-mentioned figure it was but a shade away from it. Controlled as it is, by factors outside the country, raw silk has been jockeyed at every whim of those factors who have had the situation in the palm of their hands and have taken advantage of that fact just as often as opportunity presented itself—and that was as often as they desired. This fact has made the manufacturer more cautious than ever in his buying of raw material and in his production of finished fabrics. It also worked adversely with the buyer who was fully as cautious as the manufacturer; conservative buying became the rule and this condition was not relieved until the demand for finished goods from the ultimate consumer became more insistent and buyers went into the market. As is always true in a market of this character there was the constant presence of inferior goods with which to contend. This proved detrimental. One thing learned from the disastrous days of 1920 is that quality product is what the consumer wants and will have and for which he is willing to pay.

Rise in Early Months

The year started well. Canton crepe assuming an enviable position, which it retained throughout the entire year. With it taffeta was being highly and favorably considered and the close of the first month of the year saw business on a higher plane than that with which the previous year had closed. Of course, as has always been true during the opening months, prices were low and January was no exception but, with raw material prices gradually assuming the proportions by which they became well known before the close of the year, sellers were heard to express dissatisfaction and it was inevitable that a rise in fabric prices must come and it did. Sellers, of course, were well supported in the reasons set forth for this rise and from all appearances were fully justified in exacting higher prices for their goods.

Before the arrival of March prices had gone to a point claimed to be more in keeping with replacement costs and there they remained. Advances were made at the rate of about 15 per cent. Business was on a good footing, consequently there was little complaint heard from buyers on this score. Gradually demand was reaching out to all fabrics and each week saw new developments in the making. Production gradually was increased and demand was well cared for. The market was in the midst of spring buying and expansion was under way. As is always true with the arrival of warmer weather, the entrance of April and May saw a noticeable slackening.

Manufacturers Cautious

Unlike the previous year, when manufacturers, carried over their heads by voluminous business, produced silks in large quantities, in 1922 they took conditions at their face value and accordingly cut down on production. However, with the summer season in the offing, georgettes came to the front and though they did not come up to the mark set by Cantons they certainly were greatly called for. Throughout the entire summer season, business was on a more or less hand-to-mouth basis. However, with all the quiet that featured the market, prices did not receive the cuts that might have tended to improve business to some extent. There were concessions here and there and some of them were big—this latter feature being used by a number to stimulate mid-summer business. The summer season is always characterized by dullness and this latter feature was none other than what was expected throughout the market and caused no great apprehension as to the future.

The arrival of September, when ordinarily fall buying should be well under way, saw no great change but it did serve to forecast the coming of

DU PONT FIBERSILK

DU PONT FIBERSILK COMPANY

Incorporated

Manufacturers of

Artificial Silk

in the Skein

Office and Factory
River Road, Buffalo, N. Y.

Branch Sales Office
132 Madison Ave., New York

the great print rage which has been with the market since. Those who first entered the handling of prints were besieged with orders; mills and printers were kept on these numbers to capacity. In fact, the demand from buyers throughout the entire country became so heavy that on all sides sellers of prints were springing up and some dire results were predicted by those who saw the print craze as only one of those storms to which all markets are subjected and which are gradually overworked. Printers who had never before touched silks entered this field. Manufacturers everywhere took up the making of fabrics for printing and only a few of the older and more conservative houses in the market chose to stay out of the running. Since that time prints have created a furore in the market and they are today to be had in every city and hamlet in the country. More prints are being and will be seen this year than has been true in many years.

Cantons and Prints Lead

With the exception of orders on Canton and prints, business up to the close of the year did not develop in much greater proportions than that which had featured the early fall. It continued on a hand-to-mouth basis with many houses until a short time before the arrival of the holiday season, when a change was noted and some heavy trading was seen. In the meantime prices struggled along on nearly the same basis as that at which they were held during the summer months with here and there a change upward, which was fully warranted in the opinion of all houses. Pre-holiday trading seemed to indicate the popularity of flat crepes for the coming spring. As the time for publication nears, Cantons again are coming to the fore and it is certain they will figure in the running during the present year. This brings us to a consideration of what was done in the way of presenting new patterns in wanted fabrics of the fancy order. Probably more than any other, matelasses and blistered silks were called for in volume, once they were brought out.

All in all, 1922, when considered with its predecessors, 1920 and 1921, did much to warrant the prediction of prosperity which is said to be coming to the world in general. Throughout the silk market, sellers are most optimistic and this optimism will not be misplaced, judging from the response that has gradually come in the first weeks of this year.

Ribbons Well Received in 1922

Way Paved for Triumphant Course of This Market During Coming Year

THE year 1922, though it developed no wonderful proportions in ribbons so far as volume business was concerned, did much to pave the way for the big things that are expected of it during the coming year when it is predicted they will see the best form of popularity experienced in three years. Like their brothers in the broad silk field, sellers have done much in a constructive way to bring about a better feeling toward the use of ribbons. Advertising has been done throughout the market, in the retail fields and in all places where it has been felt that such propaganda would meet with the results desired. Ribbons have been in a quiet vein for the last two years and business in this market has not developed to the proportions desired by even the most conservative.

Ribbons Well Backed

The efforts of the manufacturer to place ribbons in the category of the staples, though they have not accomplished just that, have done much to place them in a position where they will be enabled to take advantage of what flow of popular favor may come to them in the future. Ribbons in the past have been more or less of a seasonal article subject to the whims of Dame Fashion. However, there has been a movement forward in favor of ribbons and it seems certain to meet with ultimate success.

In addition to the progress made in 1921 in way of new uses for ribbons, more have come out. Individual houses have issued their own booklets and leaflets, illustrating the uses to which ribbons may be put and in addition the Silk Association of America has added to this form of publicity. During the fall, "Ribbon Art," a good-sized booklet in colors, was produced and sold to the trade. The latter in turn carried on the work among the consumers who responded in good form. Incidentally this booklet reached the latter trade just previous to the holiday season and aided in sales of ribbon.

Monetary Profits Small

But so far as profit from a monetary standpoint is concerned, 1922 was not an entirely satisfactory year. But it had its rewards. Business was carried on in a small way and though on a hand-to-mouth basis, it developed volume in the aggregate unlooked for when the year opened. The previous year had closed under conditions that were not auspicious. As the year opened these dull times continued and were true for the better part of the year. Production-cutting, which had been in order in the latter part of 1921, was continued into 1922 and held forth throughout the year. Caution featured operations and as the year wore on there seemed to be no end to this policy.

As is annually the custom, prices were subjected to a revision in February and from then on a fairly steady basis was maintained. Business for a time seemed to be taking better form. However, these prices were due for an upward change, with raw silk taking leaps such as had never been heard of before in the history of the market.

Fall Season Better

The entrance of fall saw slight improvement in ribbons. Advertising was placed with the daily press, the booklets mentioned above were issued, and in other and divers ways ribbons were placed in the best light possible to make them sell. In an analysis of the subject of ribbons hope is held out for them in the fact that Dame Fashion in her edicts has directed that ribbons be worn on hats and dresses, and showings of the present season have presented ribbons in larger volume than has ever been seen before. Whether in millinery they will have to contend against heavy odds in flowers and other adornment remains a question.

In the novelty numbers sales were good and some unusual ideas were presented for the consideration of buyers for the holiday season. In these, garters, wrist watch ribbons and the like led the field but as the year came to an end ribbons for use in millinery and dresses came to be featured heavily. Tinseled ribbons for evening dresses and the like were in demand with dressmakers and likewise for hats. Some very pretty patterns in ombrès, cirès and moirès in varying widths were brought out and each proved to be popular. The outstanding feature of the ribbon market was the consistency with which velvets were taken. The latter probably was the most popular fabric ribbon of the entire fall season and it has continued so with those spring buyers who placed their advance orders before the close of the year. As the year drew to a close, optimism had taken hold of nearly all sellers in the market and they were all confident of the prospects for 1923.

Bright Prospects

With the raw silk market operating on a basis such as has been true for the last year, ribbons have come to be subject to an upward tendency. Certain it is that as the year closed predictions were in the air to the effect that with the arrival of new business there will be a revision to higher prices. Business is looked for from many sources.

Activity Holds in Spun Silk

Market Uncovers New Users During the Year—Future Outlook Prosperous

THE year 1922 has been one of activity for the manufacturer of spun silk. He has been kept at capacity operations in an effort to supply the demand upon him. The market has in all probability seen the best year in its experience. The year opened with spinners active in an attempt to complete deliveries placed in the latter months of 1921. Cancellations were few and far between, so active was the demand for spun yarns; their opening basis for the year's operations was firm and there was little doubt that the ensuing year would be successful in every way.

More and more manufacturers of broad silks came to be heavy users of the spinners' product during the year and from this source a large volume business was recorded. Yarns were kept moving in a manner that predicted activity for the better part of the year. Prices were in a healthy and firm condition, a sound basis having been established early in the year and while operating costs were mounting in the early months, those for yarns were kept at a level, which covered replacement costs, but allowed little for profit. At the same time, more manufacturers were being converted to the use of spun yarns and the demand was gradually becoming heavier.

Spring Business Spotty

In the spring business was spotty with but little call from worsted and woolen weavers, the latter claiming that prices had reached too high a plane upon which they could operate with safety. At the same time silk weavers on satins and duvetyns were operating in large volume. Prices at this time were quoted $5.50 for 2-60s and $4.50 for 1-60s, a slight decline for the latter and an advance for the former having taken place. Gradually this condition among worsted and woolen weavers was relieved and call became more active from this source.

Change in Fall

The arrival of fall saw a distinct change in this market and domestic spinners were active, garnering all the business they could in order to keep their mills running at capacity. Prices were quoted on a $4.00-$5.20 basis. The high cost of raw silk served to bring out many new users of spun silk, some carrying on experiments on what their immediate prospects were for using this product. New converts were created.

During the year much has been done in the crepe family; large amounts of this fabric have been turned off the looms of manufacturers using spun silk and the product has proved its right to consideration from buyers. Large amounts of yarn were produced during the dull months of the summer and when the fall season opened nearly all mills were well supplied with orders though this should not convey the idea they were not on the alert for new business. As the year drew to a close, spinning mills were finishing one of the really successful years of their career. They were on firm ground with an exceedingly bright outlook presenting itself in the immediate future.

TUBIZE ARTIFICIAL SILK COMPANY OF AMERICA

Orders offer the best evidence of satisfaction. The growth in the number and size of orders received speaks eloquently for the quality of our product and the success of our efforts to be of service to our clientele.

A list of manufacturers using our product includes the country's leaders. The very success these men have attained is due in large part to their careful methods of discrimination.

Hopewell, Va. Philadelphia, Pa.

Sales Office:
303 Fifth Avenue
New York City

Gains Continue in Artificial Silk Production

About 26,000,000 Pounds Manufactured in United States in 1922, as Against 20,000,000 in 1921—Contemplated Production in 1923 Approximates 34,000,000 Pounds—Weaving Trade Regarded as One of the Most Important Potential Consumers in the Future—Prices Maintained Throughout Year

THE accomplishment of doubling its production in one year, increasing this total by approximately one-third in the next year, and planning for a similar enlargement during the year to come, can be credited to the artificial silk industry in the United States. This statement tells in a graphic way the history of this industry during 1921 and 1922 and the probable developments of 1923.

When 1921 saw a 100 per cent jump from 1920, the industry concerned might very well have been expected to undergo a reaction or a slump in the following year. On the contrary, however, the upward movement continued and in 1922 approximately 26,000,000 lbs. of artificial silk were produced in this country as compared with 20,000,000 lbs in 1921. If present plans are realized, 1923 will see a production of between 33,500,000 and 34,000,000 lbs.

The Viscose Company

The Viscose Company, with plants at Marcus Hook, Pa., Roanoke, Va., and Lewistown, Pa., produced 19,900,000 lbs. in 1922 as against approximately 18,000,000 lbs. in 1921. The present production is on the basis of 23,500,000 lbs. per annum but this basis will be increased during the year and the production for 1923 is estimated by the company at 25,000,000 lbs. Extensions to the plants of the Viscose Company are well under way and when these are completed the company will have a capacity of 30,000,000 lbs. per annum. It is expected that the latter basis will be reached sometime during 1924.

du Pont Fibersilk Company

The du Pont Fibersilk Co., Inc., with plant at Buffalo, N. Y., and operating under French Viscose patents, produced 1,500,000 lbs. in 1922. This was the quantity for which the plant was originally planned. The capacity has been doubled, however, and the company expects to produce approximately 3,000,000 lbs. in 1923.

Tubize Artificial Silk Company

The Tubize Artificial Silk Co. of America, with plant at Hopewell, Va., and operating under the Chardonnet or nitro-cellulose process, produced 2,600,000 lbs. in 1922. This plant is now producing at a rate of from 275,000 to 300,000 lbs. a month and it is expected that its production during 1923 will approximate 3,250,000 lbs.

The Lustron Company

The Lustron Company, Boston, Mass., operating under a specially adopted cellulose acetate process, is at present operating on a basis of 500,000 lbs. a year.

Cupra, Inc.

Cupra, Inc., has built a plant at Clifton, N. J., for the production of artificial silk under the cupra-ammonium process. By March, it is expected to reach an average production of 1,000 lbs. a day, and the estimated production for 1923 is 300,000 lbs. This company manufactures artificial silk from 60 to 300 denier or larger.

Industrial Fibre Co.

The Industrial Fibre Co., Cleveland, Ohio, operating under Italian Viscose patents, started production practically over a year ago and is now operating steadily at the production for which it was planned.

American Cellulose & Chem. Co.

The American Cellulose & Chemical Mfg. Co., Ltd., with plant at Cumberland, Md., will probably be one of the commercial factors in artificial silk production during 1923. It is expected that actual operations will be under way by June.

Comparative Figures

The following table shows a summary of production last year and estimated production in 1923:

	1922	1923
Viscose	19,900,000	25,000,000
du Pont	1,500,000	3,000,000
Tubize	2,600,000	3,250,000
Cupra, Inc.	.....	300,000
Lustron	500,000	500,000
Other firms	1,500,000	1,500,000
	26,000,000	33,550,000

Other Projects

During 1922, countless rumors developed regarding firms either actually starting to make artificial silk or planning to enter the industry. Upon investigation, many of these proved to be without foundation, while others were authentic enough but not advanced to the point where the promoters cared to discuss their plans. There has been enough new interest, however, to indicate the possibility of actual developments during 1923 in the form of new organizations.

Distribution of Product

One of the most difficult subjects on which to secure definite information is the proportionate distribution of artificial silk among the different consuming industries. The experience of the various concerns manufacturing this product often varies widely during the same year. This is easily understandable because often the mill may be making a very excellent silk but the limits of its productive capacity will prevent it from supplying the full needs of large customers. In certain uses of artificial silk, probably particularly in the hosiery field, it is quite desirable to have only one kind of artificial silk in use. Dyeing properties of silks manufactured by different processes vary to some extent and trouble is likely to be experienced in shading if different silks are in use at the same time. As an example, the vice-president of a prominent artificial silk company stated that the hosiery trade did not come up to his expectations as a purchaser of his product in 1922. He added, however, that he believed this was due primarily to the fact that he was not in a position to satisfy the entire needs of certain large firms and consequently did not get as much of the hosiery business as he might have otherwise.

The personal opinion of a man who has followed the artificial silk market closely is that during last year the hosiery and underwear trades took about 50 per cent of the total American product; the knitted cloth and outerwear industry about 30 per cent; and the weaving and miscellaneous industries about 20 per cent. This is not offered as an authoritative statement but merely as a possible guide.

Writing the history of the artificial silk industry in the United States during the last few years has been a pleasant task. There has been no occasion for explanations as to periods of depression or for obituaries on mills standing idle. Consumption seems to have kept permanently in advance of production and new companies entering the field have found that there was plenty of room for themselves.

Forecasting the future in this industry seems to be equally pleasant. Practically all companies have plans for increasing their production and can see possibilities in the years to come exceeding even those remarkable achievements of recent years. There is no exaggeration in the statement that American artificial silk has come to be a very important product and that the position of this industry will be consistently strengthened as years go on.

Position of the Weaving Trade

There is, however, one point on which most factors agree and that is that the weaving trade has become more and more of a factor as a consumer of artificial silk and that it may be expected in the future to increase to a greater degree than probably any other branch of the textile industry. One of the reasons given for increased consumption on the part of weavers is the high price of real silk. However, this is only a part answer. It is more likely that weavers are slowly coming to the realization of the unusual effects which can be produced with artificial silk, particularly as a decorative material in cotton and wool goods. Some of the fine ginghams with artificial silk decorations produced down South last year represented noteworthy developments from a style standpoint. There have also been unusually effective combinations of wool and artificial silk.

Use of Fine Sizes

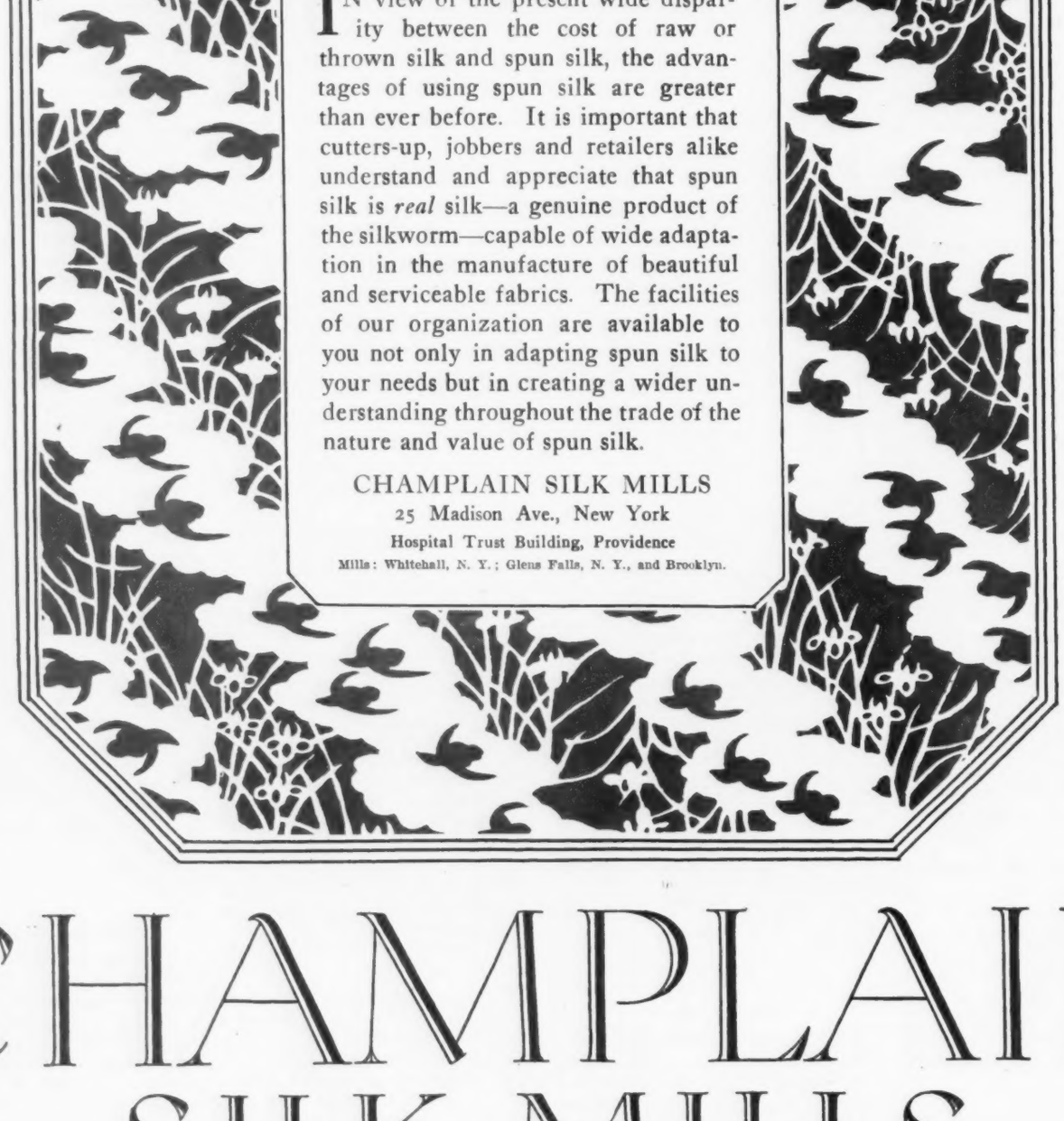
Naturally the bulk of the demand still falls on standard sizes of artificial silk, principally 150 denier, but there has been enough of a tendency during the last year to indicate broad possibilities for the use of finer sizes. Just three samples seen by the writer, including a piece of artificial silk crepe, an artificial silk knitted fabric and a sample of upholstery fabric, all done with fine numbers, were sufficient to indicate the unusual effects which could be achieved in this direction. Any but a trained fabric man would have difficulty in recognizing the crepe particularly as an artificial silk fabric. It seems that in the use of the finer sizes the twist required tends to lessen the luster and to produce more the effect of real silk. It is undoubtedly true that missionary work is necessary along the lines of the use of fine numbers, but it is felt in many quarters that here rests one of the big opportunities for still further increasing the flexibility of the prospective field for artificial silk.

Market Situation

Reporting the price changes in the artificial silk market has been quite simple during the last year as there has been no alteration of existing quotations at first hand. The 150 denier, grade A, bleached, has been priced at $2.80 per lb. all this year, with other numbers in proportion. These prices are practically assured until April 1.

Most plants have had their production well taken care of for some time

SPUN SILK



IN view of the present wide disparity between the cost of raw or thrown silk and spun silk, the advantages of using spun silk are greater than ever before. It is important that cutters-up, jobbers and retailers alike understand and appreciate that spun silk is *real* silk—a genuine product of the silkworm—capable of wide adaptation in the manufacture of beautiful and serviceable fabrics. The facilities of our organization are available to you not only in adapting spun silk to your needs but in creating a wider understanding throughout the trade of the nature and value of spun silk.

CHAMPLAIN SILK MILLS
25 Madison Ave., New York
Hospital Trust Building, Providence
Mills: Whitehall, N. Y.; Glens Falls, N. Y., and Brooklyn.

CHAMPLAIN SILK MILLS

ahead at all periods of the year and are now in an excellent position, being sold up on the principal grades for at least the first three months of 1923. Practically no surplus stock has existed and it has often been a serious problem to supply immediate requirements of consumers. It is rather noteworthy that a seller's market of this sort has not induced price advances and undoubtedly a good deal of the popularity of the material is due to the wise action on the part of manufacturers in keeping levels stable and in resisting the temptation to boost prices.

Wanted: A Name

The manufacturers of this product are gradually waking up to the fact that the term "artificial silk" is a misnomer. Thus far no satisfactory substitute has been proposed and although certain firms have succeeded in getting their product known to some extent by their company name, nevertheless the general public still calls this material artificial silk. The disadvantages are many. In the first place the term "artificial" is usually regarded as more or less derogatory. In the second place artificial silk has established many uses for itself which are distinctive and which may not be considered as competitive with those of real silk. Finally it is technically incorrect, because the product is not similar to silk in composition. Synthetic or artificial indigo is a proper term because the product made in the laboratory is chemically identical with the natural material. This does not hold true in the case of artificial silk. It is to be hoped that some more expressive term will be developed and its use generally established.

The Future

The plans of the various companies indicate the confidence with which they look forward to the future. Practically all manufacturers state that there is still unlimited possibility of enlargement in the field for artificial silk. However, an enthusiastic statement of this sort must be tempered to some degree. The steady increase in the use of this product during recent years has led many to believe that its manufacture presents an unusual opportunity to get rich quick. Nothing is further from the truth, as many people have found through experience. First of all, the profits are not abnormally large. The writer knows something of the margin on which certain companies are working and can testify to this fact. Furthermore, the reaching of commercial production involves manifold mechanical difficulties which can only be overcome through experience and technical knowledge. In addition, it is impracticable to engage in artificial silk manufacture without considerable capital because, as noted above, it is necessary to realize production of a considerable quantity if important consumers are to be secured and held as customers. Artificial silk manufacture has none of the sensational possibilities of gold mining or oil drilling. It is a good legitimate business requiring capital, experience and care. Given these assets, a concern engaged in its production has every reason to anticipate a bright and steady future.

Demand for Silk Good During Greater Part of Year

Record Imports of Raw Silk Testify to Volume of Business—Advancing Prices Insured Fairly Profitable Operations —Outlook Is for Further Expansion—Keenness of Competition and Lack of Originality Are Handicaps Which, However, Can Be Overcome

By *William A. Spafford*

THE quick recovery from the temporary depression of the first few months of last year in the silk industry reversed the policy of the preceding year. Despite the encouraging volume of business encountered during the greater part of the year coupled with the fairly definite assurance of a continuation of this demand, most manufacturers both large and small have proceeded with commendable caution. This attitude of extreme caution seems to be one of the strong features of the situation at present, although it has been dictated largely by the high levels for raw silk, the ups and downs of which enter largely into the hopes, fears, and calculations of broad silk, ribbon, and hosiery manufacturer alike. More will be said on this important topic later. Taking into consideration our present position in the business cycle together with the total absence of the speculative enthusiasm which usually marks the culmination of a period of prosperity, it can be definitely said that the foundations have been laid and we can look forward confidently to a further period of expanding operations.

Resume of the Year

A sharp decline in raw silk starting in the first part of January and continuing through March put a damper on sentiment and curtailed business considerably. From a high price of above $8.00 per pound raw silk dropped steadily until it could be bought below $6.00. The forced covering of large contracts made with the hosiery trade during the fall of 1921 undoubtedly carried prices to levels which were not quite warranted by the then existing state of business. A let down in demand aided by the strained credit position in Japan forced the wide open break. Starting as it did in January, it came at a particularly unfortunate moment, for manufacturers expected business to start up again at this time following the usual December dullness.

The fact that the decline was basically a favorable development and doubtless paved the way for a profitable period during the succeeding nine months, buttered no silk manufacturer's parsnips at the time. A heavy pall of gloom hung over Madison Avenue and Fourth Avenue during this trying period while factors were waiting for the sun to shine through the clouds in April. Jobbers and retailers deferred purchases as long as possible in the hope of forcing lower prices while manufacturers refrained from covering their raw requirements for the same reason. Distress lots of merchandise appeared on the market.

Fortunately business throughout the country was on the upgrade. Due to the reduced operations of the previous eighteen months, stocks were in no sense of the word large, so that when raw silk touched bottom in the early spring, a backed up demand soon started prices upward again.

Possibly we have already dwelt too long on the dark side of the picture. Suffice it to say that the balance of the year presented a far different state of affairs. With the confidence engendered by the sight of rising prices, demand picked up again in April and with one or two lulls has continued on a broad scale since. May and June were exceptionally good months with the retailers, jobbers, and cutting up trade buying freely against deferred spring and summer requirements. The fall months also were good, while orders already booked for the coming spring led to the expectation of another good season. Moreover, raw silk prices have gone up steadily thus practically forcing a profit upon holders who in many instances, if it were not for the gradual advance in prices, would have sold their production at bare cost in order to keep their looms running.

Imports at Record Figure

The record total of imports of raw silk during the calendar year 1922 would seem to bear out the statement that demand was extremely good during that period. While quite a portion of the trade are apparently dissatisfied with the results achieved, one must take this attitude with a grain of salt. The very fact that the astonishing total of 392,000 bales of raw silk were brought into the country as compared with a previous high figure of 330,000 bales, testifies to the volume of business. Probably 375,000 bales of this total went into consumption, for warehoused stocks increased slightly during the year. In addition it must be remembered that now more so than at any time in the past, raw silk is being used in conjunction with some other fibre thereby increasing the total yardage produced.

The above figures speak for themselves. For anyone to complain in the light of the foregoing is a confession of weakness. In all industries there are marginal producers hanging on by the proverbial eyelash and this holds good in the silk industry as well as any other. The manufacturer who did not increase his volume of sales during the last year (we are speaking now of yardage produced, not in terms of dollars) must have something wrong either with his product, his costs, or his sales force.

The growth of the industry has been steady and sure from its very beginning. The two primary reasons for this have been the increase in population and the steadily rising standard of living. The latter factor was first brought prominently to attention during the war period and immediately thereafter when the swollen pay envelopes of the worker permitted the enjoyment of luxuries which had been up to this time a closed book. We can rest assured that habits of this sort will not be easily relinquished. The interesting point was recently brought out by one of the real leaders of the industry that the per capita yearly expenditure for silks in the United States is less than $15.00. If each person spent only $5.00 a year more for silks what a vast boon it would be to the industry, for it would mean an increase in sales of over a half billion dollars. The thought suggests the possibility of a national "Make it with silk" campaign along the lines found successful in advertising other group products.

Some of the Difficulties

With the consumption of silks on the increase throughout the country, with not only the prospect but the near certainty that a two billion dollar a year volume will be reached within the next few years, the future at first thought becomes obscured in a rosy cloud. But on closer examination little blemishes of indigo appear on the fringes.

First of all there is the fact that competition is keener than in any other textile line. Practically anyone with small experience and even less capital can buy a few second-hand looms, get his raw material on credit (for credit is easily obtained—perhaps too easily among a certain class of dealers) and become a manufac-

Dependable All Ways - Always!

—for decorating worsteds and woolens

—resist colors and extra fast shades for special requirements

—unusually prompt service; careful attention

—leading makers of high quality spun silks.

—fine looking worsteds get their distinctiveness from the clever interweaving of spun silks.

American Silk Spinning Company
Providence, R. I.
One Madison Avenue, New York

Spun Silk

turer. It is the presence of these undesirables who spring into existence over night when business shows signs of picking up—producing an inferior class of merchandise at cut-throat prices—that makes things difficult for the established manufacturers.

It has been said of the latter class that they are afraid to ask a fair price for their products and maintain this price, preferring rather to grasp whatever business appears even if the margin of profit is almost infinitesimal. However, faced as they are with severe competition on the one hand and on the other with the necessity of keeping their looms running, it is easy to appreciate their oft-repeated complaint that they cannot get replacement costs for their merchandise.

Then again there is the ever present problem of the raw silk market which will probably continue to fluctuate as long as the well-known law of supply and demand is with us. In fact it is doubtful whether the happy millennium will ever be reached when all raw silk will come into the country at a fixed price of say $5 a pound with the additional regulation that all costs must be figured on the basis of $7.

Although it is possible that too much stress is placed on the ups and downs of raw silk prices, nevertheless, due to its relatively high cost in comparison with other textile fibres and its low conversion index it is of necessity an important element in any manufacturer's costs. The trouble here is that when the market is advancing, those who have been fortunate enough to anticipate their requirements do not allow for the full extent of the advance in their prices. Those not so fortunately situated—and these are legion—have to pay the full advance and still meet the competition of the former. When the market declines all share in the loss equally.

Another difficulty lies in the fact that a great proportion of the trade lacks originality both in ideas and action and is content to drift along with the tide rather than dare to boldly strike out in a new direction. Granted that it costs quite a bit to bring out something new, still there is too much of a disposition to follow the crowd. If a particular kind of crepe, for instance, happens to be selling well, everybody starts to run his looms on this material. Fashions unfortunately change rapidly, for the public taste must be constantly tempted with new ideas. Usually these imitators get their first pieces through just in time to catch the fag end of the demand and when the buyers' interest shifts to something else, they oftentimes find themselves faced with the necessity of closing out the number at an actual loss.

The historic parallel of this was the georgette craze in the latter part of 1919, the untimely end of which shattered the happy dreams of many a budding Paterson potentate. How many a manufacturer at this time confidently calculated on selling all the georgette he could produce at above two dollars a yard yet after the break came disposed of his last pieces at less than a dollar and even less than seventy-five cents a yard in many instances. The urgings of stern necessity forced them to accept such low prices, for everyone had georgette to sell while few wanted to buy.

The situation just referred to is an illustration of our criticism, carried to an extreme. The same thing happens again and again, though on a lesser scale. The dire consequences, while not so tragic, cut deeply into a manufacturer's profits. To guard against this periodic over-production in certain lines, the simple cure-all is—don't be in too much of a hurry to copy somebody else.

Outlook for 1923

With the foregoing out of the way—off our chest so to speak—it now becomes doubly pleasing to chronicle the fact that the outlook for the present year contains nothing but promise. Some internal ills we shall have with us always but the real business of turning out the millions of yards necessary to satisfy the needs of the American public goes on still. It has been said that but one year in seven brings prosperity to the industry as a whole. The coming year holds forth the promise of fulfillment somewhat before the prophecy is due.

The outlook for the year is very closely bound up with the prospects of business in general in the country. Not inextricably it is true, as witness the fact that the crash in 1920 was brought about by factors far removed from affairs here, namely the financial panic in Japan. However, the movement of silks to the consumer will depend in the main upon the capacity of that consumer to purchase.

The general business trend is distinctly toward further expansion with the consensus of expert opinion, backed in addition by the stock market's usually reliable prognostication, to the effect that no let down need be anticipated before next fall if indeed it comes then. The construction of new buildings proceeds at a record pace; our basic industries such as steel, mining, etc., are finding all the business they can handle, while the present price for cotton means better business throughout the South. European affairs are in a chaotic muddle it is true but the difficulties there will eventually be cleared up. Europe on a saner political and a stabler financial basis means higher prices for farm products and a more equitable relationship between the farmer and the industrialist.

Whatever the outlook for Europe, 1923 will be a year of activity in most lines in this country. The destruction of capital during the war will have to be replaced. This destruction of capital assumed its most tangible form in the combat districts yet it proceeded just as certainly in this country. Deferred building, deferred railroad maintenance and equipment, while labor was engaged in producing munitions and ships, constitute capital destruction equally as much as the explosion of a 16 inch shell in an ill-fated cathedral.

Capital replacement plus the new tariff wall can be counted upon to keep business active and prices strong for some time to come. As to 1924 it is useless to hazard a guess. The Presidential election coming in that year together with the increasing political radicalism combine to make the maintenance of the present tariff doubtful. Moreover, from the manufacturer's point of view we must not overlook the fact that Europe owes, and must pay us in goods, interest on the war debt amounting to hundreds of millions annually.

Translating all this into terms of the silk trade means simply that business should be good throughout the greater part of the year with the not unremote possibility of something approaching a boom in the summer or fall months. Activity in other lines means employment at good wages which in turn implies the ability to buy semi-luxury articles such as silks.

Raw silk at more than double pre-war prices will necessitate caution a little later on although the outlook now is for still higher prices. Stocks are relatively small despite the presence of 50,000 bales in New York warehouses. With consumption proceeding at the rate of 30,000 to 35,000 bales monthly, it amounts to less than two months supply, certainly not a staggering total. In Yokohama there are about 35,000 bales with the prospect of reduced arrivals until the spring. No actual shortage is imminent for the increase in exportation can be made up by the decrease in domestic consumption in Japan. The reelers there, however, have paid stiff prices for their cocoons and even at present prices of $8.50 a pound will not make very much money unless raw silk moves still higher. We can rest assured that strong efforts will be made to advance prices which should not be very difficult in view of the continued heavy consumption.

The "Movies" Teach Textile Skill

(*Continued from page 209*)

property just after the mill closes, and for which the public school department furnishes special teachers. The operatives who cannot speak or read English are encouraged in every way to attend regularly, and a follow-up system keeps the mill executives informed as to the attendance and progress of each individual employee.

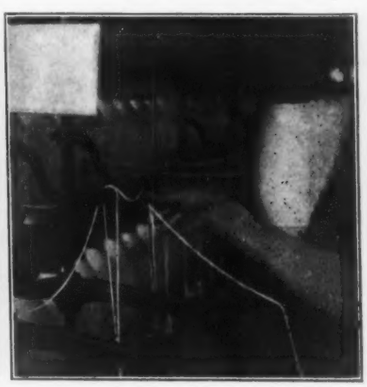
Preparing the Films

The preparation of motion picture films for educational purposes of this kind is no simple task. The Fairhaven Mills, in order to get pictures which would show plainly what happens in each process, found it necessary to rig special machinery that could be operated very slowly. Sometimes it was necessary to run it by hand power to clearly depict what occurs, and always there was someone at hand to point out with a rod just the particular thing it was desired to emphasize.

Driving Home the Lesson

The work of education is followed up by special instructors who go through the mill constantly observing the methods of the various workers. Occasionally it is deemed advisable for some operatives to see the films a second time, but in general the mill plans to have each of its workers see the films at least once. They are shown each day for five days a week until all have seen them, and the groups are made up of a few from each department. During their absence from their machines fellow-workers at adjoining machines, or second hands, or others are put in their places so that the work of the mill suffers no diminuation of output. As occasion requires this process is repeated.

Long Splices Like These Never Break Down



The Correct Method of Splicing

Beneficial Effect Very Evident

The results already accomplished, Mr. Thomson says, are clearly noticeable, as not only is the quality of product in his own mill showing steady improvement, but new workers recently employed indicate that others are adopting these methods of operation.

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Further Readjustment in Hosiery Market

Consumers' Demand for Quality Hosiery at Popular Prices One of the Outstanding Features of the Year—Heathers Enjoy Active Sale Despite Poor Start—Narrow Demand for Silks—Combination of Fibre with Thread Silk Makes More Popular Seller

THE consumers' demand for goods at a price has been the dominating influence in the hosiery market during the last year. For the two previous years, jobbers were able to turn goods out to the retailer, regardless of the price range. During 1922, the call for the 25 and 50c. article, as well as the good dollar seller, manifested itself in the consumers' demand.

On the whole, the year has been fairly successful. It was expected that it would be twelve months of readjustment, and certainly this expectation was more than realized. Manufacturers found that during 1921 the consumer was going to demand better quality in hosiery, and in many instances the manufacturers set about to improve their lines in order to answer the call of the buyers' demand for quality merchandise at popular prices. Throughout the entire industry the year 1922 will be looked back upon as one of profit. The wise manufacturer covered on yarns during the summer, and was able to name attractive prices for the spring of 1923 during the early fall. That the jobber was something more than a buyer was evidenced by the volume of orders placed during the months of October and November. Prices were low. Buyers realized this. They anticipated their wants in some instances up until the end of May. This gave the manufacturer confidence to proceed with the production of his goods on a sound basis.

The Heather Situation

Perhaps no one class of hosiery has been the subject of more comment than has the heather. Starting the year with every manufacturer who could possibly commandeer surplus 176-needle machines, heathers were being turned out in volume. The more conservative of the manufacturers were predicting that the demand for this class of merchandise would hardly last out the winter season. However, as the winter grew older and the consumer showed a marked willingness to buy this class of hosiery in preference to the silks, manufacturers began to line up their numbers for the following year. The picking had been so good during 1922 that a great many manufacturers who had never been in this class of manufacture before undertook to turn out on their own 176-needle machines dipped heather hose as a substitute for the ingrain heather, which had been so popular during the year of 1921. This naturally made for a great deal of skepticism on the part of the jobber. It was expected that there would be many orders taken on this class of hosiery which the mills would find impossible to deliver.

Even among the better class of manufacturers the heather was an extremely difficult problem. The matter of making the proper and desirable shades caused many producers to hesitate in bringing out their line for 1922. From all indications, up to April of 1922, light colors would predominate. It is generally conceded that whatever color or colors go out strong on the tail end of one season will be exceptionally popular during the following quarter; but this was one instance where what was generally true failed to materialize. True it is, the jobbers bought heavily and in many instances contracted to take the goods in during the latter part of the spring and early summer. To a certain extent this spelled the downfall of the light heather.

During June and July the jobber found himself forced to accept goods for which he had to pay on short terms, and which would not be available for his selling prior to October or November. This meant that the jobber would be forced to place his goods in warehouse pending the arrival of cold weather. The fact that he had so much money tied up in goods which could not be disposed of for five or six months caused even certain of the larger jobbers to grow a trifle panicky. The net result was that the jobbers cut prices in order to induce the retailer to take the goods in early. This in turn made the retailer feel that there was an exceptionally large overproduction of heather hosiery. The word was passed quietly around the market that jobbers were willing to dispose of every dollar's worth of heather goods at less than they had paid for them.

Market Became Panicky

In general, the market became panicky on this class of goods, and for a time it looked as though mills would be flooded with cancellations. Selling agents urged their mills to deliver promptly, as it was well known that the smaller buyer was looking for the least excuse to throw back the goods on the manufacturer. But as the season for the consumption of this class of hosiery got under way it was readily discernible that the sale of heathers during 1922-23 would be as great, if not greater, than during the season of 1921-22.

However, the shades most in demand were exactly opposite to what all hands had expected during the early part of the year. For the most part, orders had called for camel shade and other light colors. The fortunate part of the entire situation was that the demand of the consumer centred mostly on black. As the camel shade could be readily and successfully dyed to a jet black, it may be seen that both the jobber and the manufacturer managed to get from under in a better way than was anticipated during the summer months.

To many men in the industry the heather represents a field wherein the American manufacturer may profitably spend a good deal of endeavor. For the last two years the consumer has shown that the heather has gotten out of the novelty class and is now to be classed as a staple. The better grade of heather hosiery, selling at $1.50 or $2 a pair, has enjoyed active sale during the year just past. In the minds of certain of the better versed men of the trade, the consumer will be willing to purchase this class of hose, providing the manufacturer is able to turn this out at prices competitive with certain of the importers' quotations. In general, therefore, it can be said that the heather hose will continue to be an active factor in the hosiery market for the next few years at least.

Silks a Mystery

When one walks around the city streets and allows his eyes to turn to women's hosiery, silks, undoubtedly, predominate. But during the year 1922 the sale of this class of hosiery has been confined to a minimum. During the early part of the year it was thought that the increased use of heather was making a material inroad in the sale of silk hosiery. As the year wore along and the jobber showed no inclination to increase the volume of his orders on this class of hosiery manufacturers began to search around for the reason of this narrow demand. Jobbers declared that their customers were not showing any material interest in silk hosiery. While it was admitted that prices were high, the fact remained that silk hosiery predominated throughout the country.

Certain men in the trade were of the opinion that the increase in the direct-to-the-consumer selling was causing the sale of silk hosiery in legitimate channels to shrink to a minimum. Whatever the reason, the volume of silks sold through the jobber during the year 1922 was comparatively small. Manufacturers had expected that the year 1922 would bring prosperity to all handlers of silk hosiery, but in this they were doomed to disappointment, as for some unaccountable reason jobbers were not able to turn this class of merchandise over to anywhere near the anticipated volume.

Other Classes of Hosiery

During the year 1922 the sale of low-end cotton goods showed a material increase. This is taken as an indication that the country is getting back to a more normal basis. During the years of plenty and prosperity, such as we had during the war and the post-armistice period, the consumer would pay any price the retailer saw fit to ask. During 1922 there was a material increase in the demand for a plain, durable cotton stocking at 25c.

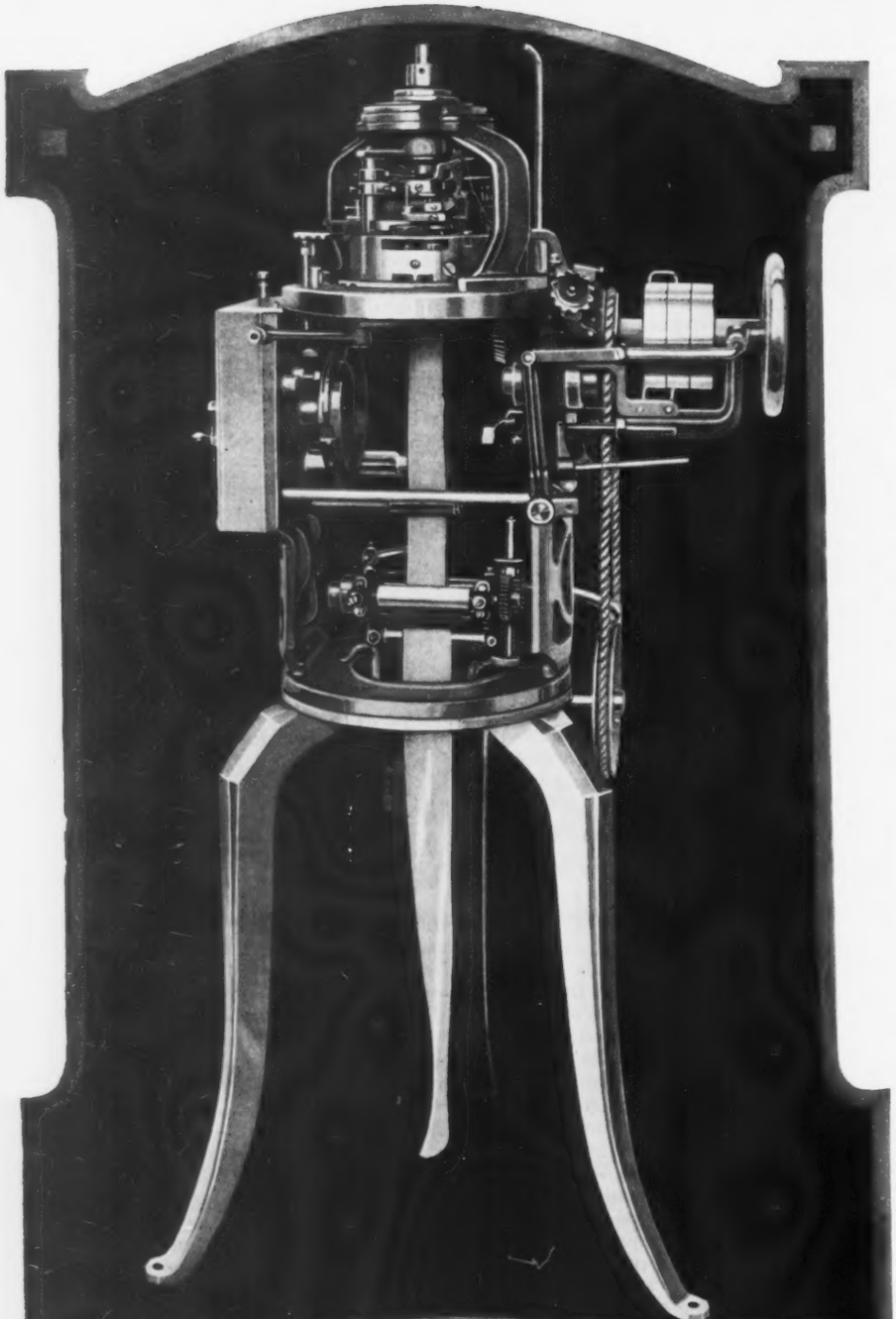
That there has been a marked demand for low-end cotton hosiery is shown by the volume sales of certain of the larger chain stores, featuring hosiery at a price. Despite the fact that yarns advanced to an almost prohibitive level during the latter part of the year, manufacturers were able to turn out 220-needle combed yarn hosiery at a price permitting it to be sold in the 25c. class. That the consumer was interested in a 50c. article was discernible from the large volume of sales recorded on fibre silk goods. This class of hosiery fitted readily into a 50c. retailer. Furthermore, a number of the consumers could not turn from the silk stocking so readily and in the fiber silk there was furnished an opportunity for the consumer to step down more gracefully from the pure thread silk.

During the year 1922 the sale of fleeces, which had been an important item to many manufacturers during previous years, fell away to a practical minimum. As a matter of fact, it is doubtful if the sale of this class of hosiery will show any life for some time to come, except in a few isolated instances. Jobbers declare they are unable to get any volume out of this class of goods, and this fact, coupled with the narrow profit that the distributor is forced to accept, is not going to make fleeces an attractive proposition for the year 1923.

One heartening feature of the year has been the larger distribution of mercerized goods. The jobber has cleared up all surplus stocks of this class of merchandise and during the last twelve months sales have shown gradual increase. Prices have advanced in proportion to the increased cost of yarns, but even at the new high level it is quite probable that volume sales will continue to be recorded.

New Developments

The demand of the consumer for articles at a price has served to stimulate the manufacturer to turn out something new to sell at a price. During the greater part of the year, and especially during the latter few months, it was impossible for the manufacturer to produce a pure-thread silk stocking to retail at a dollar. This served to make the man-



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ufacturer try loading his stocking with artificial silk. Not only did this meet the approval of the consumer in the matter of price, but it gave the weight and feel which were qualities greatly desired in the dollar seller. Many innovations were put on this class of hosiery, and when the year closed the fibre and silk stocking bade fair to be the leading seller during the spring of 1923.

In closing, the year 1922 may be looked back upon by the manufacturer of hosiery as one of readjustment. The manufacturers, selling agents and jobbers may confidently expect this readjustment to continue during the year 1923, and, if all indications are fulfilled, the year 1923 will close upon a more advanced, more successful and more profitable industry as a whole.

Publicity Helps Underwear Trade

Cooperative Advertising of Knitted Garments One of the Constructive Developments of 1922

IN the main, the year 1922 lived up to expectations as far as the manufacturers and distributors of underwear were concerned. The year opened with knit underwear facing a rather severe outlook for the immediate future, but before many weeks had worn away spring lines started to move and fall goods were not long in following suit. But, with all, the very foundation of the knit underwear business was being torn away, little by little. It was no secret that the manufacturer of this class of underwear was suffering from a restricted demand. True, many mills had fallen by the wayside since the readjustment period had set in, but there were more machines available than were necessary for average consumption.

Manufacturers realized this and decided to take steps of a constructive nature that would help to remedy the situation. It would have been a simple matter for the manufacturers to let matters run their natural course and allow the law of the survival of the fittest to find expression in their industry. But, instead, they decided to take remedial measures and decided on a cooperative advertising program to make the consumer once more think of underwear in terms of knit goods. It is a trifle too early at this writing to give even an estimate of the good that has been accomplished, yet there are few in the industry who will challenge the statement that the program as it is being carried out at the present time is one of the most constructive pieces of work that has been attempted in this industry during the year. Since the year has been one of reconstruction, it can be seen that the cooperative advertising campaign ranks as one of the big, if not the biggest, features of the year in knit underwear. It does not require any great stretch of the imagination to picture the mills of the Mohawk valley forced to a condition of inactivity by the increased number of active mills in other sections of the country. Something of a remedial nature had to be done. Things had reached a stage where action, not theory, was needed. The manufacturers are to be congratulated upon getting together and putting before the public the advantages of knit underwear.

Cooperation Achieved

Another feature of the year was the manner in which the manufacturer, selling agent and the jobber were able to get together and reason out certain apparent difficulties that had been bothering all factors for some time past. The meeting of the various committees of jobbers and manufacturers did much to add a better tone to the market and also to impart to buyer and seller a true appreciation of each other's difficulties. All this worked to some good and it is to be hoped that the spirit of cooperation which was manifested at different times throughout the year will continue to grow, as both the buyer and seller have common interests which can be best served by united and concentrated effort.

During 1921 many men in the trade were inclined to the opinion that the balbriggan was making its last stand. Furthermore, there were many to predict, too, that 1922 would witness the balbriggan taking its seat in that down-and-out club ruled over by the old red flannel. But instead of dying a natural death, the bal suddenly turned around and staged a surprising comeback. While everyone in the trade is willing to give the bal every bit of credit that is due it for the sudden and satisfactory return to favor, market analysts are aware that the one great reason for the increased consumption of balbriggans was the skimpy sizes of nainsook lines. Buyers had said in 1921 that they would handle the nainsook in preference to the knitted lightweight garment because they were able to make a longer profit and because the consumer was demanding the nainsook garment. Evidently the size forty-six consumer decided after he had attempted to get into a nainsook garment sold for a "46" that he had better return to his first love—the bal. This naturally found expression in the increased call for the knitted garment and the jobber was forced to turn to the seller of this class of underwear and ask for prior deliveries. Manufacturers speeded up production and the net result was that the general run of manufacturers enjoyed a fairly satisfactory spring business.

Jobbers Lacked Confidence

As has been the case since the slump occurred in 1920, jobbers have not been functioning in a natural way. Buying has been carried on in a hesitant way and jobbers appeared to have little or no confidence in the market for the greater part of the year. In certain instances they cannot be blamed for this lack of confidence, for the manufacturers did certain things on one or two occasions that would make the most daring of buyers wonder if there was any such thing as permanency. On one occasion, after the buyers generally had placed large initial orders certain manufacturers came out with lower prices, with the net result that the confidence of the market was destroyed for the time. Happily the manufacturers in question realized their mistake and raised prices to the general level. But instances such as these only go to prove that the market is yet a considerable distance from normal. In the opinion of the better versed men in the trade it will be two and possibly three more years before conditions will run along in a pre-war manner.

Fall underwear was priced on a basis of $10.50 for the 16-lb. suit. At these prices jobbers were able to turn the goods over at a profit and the manufacturer, although he was operating on a close scale, was making his machines pay him satisfactory returns. For a while it looked as though the jobbers were going ahead and buying about 75 to 80 per cent. of their winter requirements, but by the end of the first month of the year a few manufacturers threw the proverbial wrench into the celebrated machine, in the shape of lower prices. For a time it looked as though the market was about to witness a game of cutting prices. But the manufacturers pulled the wrench out of the machinery before the total damage was anything more than a big scare to all factors. However, this move served to stop buying and make jobbers hesitant about proceeding with further ordering. But as the season wore on the jobber began to regain confidence and once more entered the market and placed satisfactory orders. While the fall season was not up to the volume mark set by the lightweight branch of the market, nevertheless all hands have expressed themselves as satisfied with the way the season shaped up as a whole. In the final analysis the success or failure of a season is measured in dollars and cents and it is generally conceded that the fall season of 1922 made the proper mark on the right side of both the buyers' and sellers' ledgers. Of course the profits were not, by any means, up to the standard set by the war years, but with the prospect that all hands had before them on Jan. 1, 1922, the fall season cannot be called anything but a success.

Trend to Lighter Suit

The buying of winter underwear last year took a trend which many factors in the trade regard as especially significant. In many instances buyers were willing to substitute a lighter weight garment for the heretofore unmovable standard—the 16-lb. suit. In many cases the desire for substitution was not based on the matter of making a longer profit. Buyers declared that the demand for the lighter weight garment was making itself felt in no unmistakable terms, and certain factors went so far as to predict that the 14-lb. suit would take the place of the heavier suit in a few years. Whether this will come to pass it is dangerous to say, but it is certain that there was a noticeable trend toward the lighter garment in the year just passed. Many in the trade who have made a study of the situation declare that more 14-lb. suits were sold last year in comparison to the 16-lb. suits than in any recent year.

We have already seen how the bal returned to favor with the consumer and the jobber. Needless to relate the manufacturer made capital of this return to favor and, although in certain instances the demand came a little late to permit of volume production, it is generally agreed that the 1923 spring season came up to the mark set by both buyer and seller. As a matter of fact the call for the balbriggan suit was greater than the average manufacturer expected. The mild winter induced many to wear lightweight underwear the entire year and as a result the heavyweight's loss was the lightweight's gain. Prices named for the 1923 season were low and jobbers were willing to anticipate their requirements and the wisdom of this move was demonstrated a few weeks after the opening when prices were forced to a considerable advance by the increased cost of yarns. But as the mills were well taken care of for 1923 and as jobbers were able to make their plans for the coming season, no one except those who did not cover at the low figure in July was doing any worrying. As a matter of fact, it was an example of good business on the part of both the manufacturers and the buyers. The spring season of 1923 should show a nice profit to all factors. With the bal selling around $3.25, sufficient leeway is accorded both the manufacturer and the buyer to get in a legitimate profit.

Wage Reduction Timely

The year 1922 marked another step forward on the part of the knit underwear manufacturers to get back to a normal condition. But this step was not an easy one to take. Northern manufacturers were forced to lower wages at one stage of the year in order to meet the competition of the southern manufacturer. In many cases wage reductions were put into effect immediately preceding the announcement of fall 1922 prices. It was by this means that the northern manufacturer was able to name competitive prices with his southern brother. Inasmuch as buyers were asking for prices to be based on $10.50 for the 16-lb. suit and since the northern manufacturer could not name this price and make a profit with wages on the old scale, the wage reduction was absolutely imperative to the success of the fall trading as far as the northern manufacturers were concerned. Even at the price named, there was a disparity between the

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northern and southern mills, but this disparity was only natural and was taken as a matter of course by the jobbers.

Buying at a Price

Another feature of the year was the demand for the garment sold at a price. Buyers insisted that the consumer was demanding a garment at a certain price and would not go any higher, regardless of the quality of the garment. In other words, a man would set a price in his mind as to what he would pay for his underwear. He would sacrifice quality to meet the price. Under no condition would he pay more. Jobbers contended that they were merely carrying out the wish of the consumer in looking for and buying goods at a price.

While it is true that to a certain extent the jobber must reflect the demand of the consuming public, it is equally true that if he is going to further the standing of his particular branch of the industry he must take the initiative in many cases. He is in a position to see what is the best buy in the market and regardless of the fact that the consumer is calling for cheap underwear, it is up to the jobber to give the public, as far as he can, the best possible merchandise for its money. In many cases the retailer was to blame for foisting on the consumer a fifty- or seventy-five-cent garment which should have been dropped down another class in the price range.

During the last month of the year manufacturers came out with prices on underwear for fall, 1923, and as prices were based on 22-cent cotton, buyers were willing to anticipate a fair per cent. of their requirements. It will be interesting to watch developments this year and find out what luck the manufacturer encounters in his gamble. At the time prices were named, cotton was selling in the neighborhood of 25 cents and there was in the offing a fair chance of the price of the raw material going still higher. Regardless of this the general run, and especially the larger, of the manufacturers came out with prices based on 22-cent cotton.

With the increasing demand for the knit undergarment the manufacturer should face the year 1923 with greater confidence, founded on the knowledge of the fact that he has a wider field and that his restricted market of the last two years is going to be broadened by a campaign of concentrated, cooperative and intelligent effort.

Advertising Knitted Underwear

Campaign Started by Industry Proving Effective in Popularizing Knitted Garments

By *Roy A. Cheney**

SLOWLY but surely the manufacturers of our country are learning co-operation and team work. They are grasping the age-old principle that a bundle of twigs is stronger than one twig and that the whole is greater and more powerful than any of its component parts. In terms of the textile industry they are beginning to apply to their business the knowledge that they applied to their raw materials centuries ago, i. e., that the single fibre of cotton is made much more valuable when joined to its fellow fibres and spun into yarn. And they are learning to use the power that comes from such association.

In modern times the credit must go to the farmer for utilizing co-operative effort in the sale of his product. No longer can we call our overalled, straw-hatted friend a "hick," for he has successfully pointed the way to business in the matter of building up sales and merchandising his product. The farmer has made the squirting grapefruit a national dish, oranges and lemons a necessity for all and has raised the lowly raisin out of the pie class and made it produce dollars every month of the year. He is now changing public sentiment regarding the old boarding house prune.

Example of the Farmer

The farmer realized that the public did not give a tinker's cuss whether Bill's raisins, oranges and lemons were a little bit better than Tom's. And the farmer realized that all the money in the world spent individually in talking about one brand's superiority to another would only increase competition and not increase net profits.

The farmer realized that if he and his fellows were to survive they must increase the demand for the products of their industry and they went out and did it together.

You cannot beat the farmer for hard common sense. He and his neighbors didn't spend their money against each other, scrapping for what little business there was. They got together and made their money count one hundred per cent. in creating new markets and new business for everyone.

The knitted underwear industry has been in the same condition that the fruit farmer was in a few years ago. A condition obtained where the market for knitted underwear was restricted and growing less year by year and where manufacturers spent their advertising dollars fighting each other rather than fighting together to increase the industry's sales and to lessen competition.

Cooperative Advertising

Some six months ago the national knitted underwear association, the Associated Knit Underwear Manufacturers of America, acting for the industry sponsored a cooperative advertising campaign in the interests of knitted underwear — a campaign which would bring back to the public conscience the qualities of knitted underwear and the need for wearing it. The public was forgetting the worth of the knitted fabric, even as the manufacturers themselves had forgotten it, for up to that time knitted underwear advertising stressed only brand, cut, style and fit and left unsung the sterling qualities of knitted cloth, which make it the best material for underwear.

This has been changed now. The manufacturer's individual advertising to the consumer now tells the public the value of knitted underwear and in bringing to the individual manufacturer's attention the need for this type of advertising the cooperative advertising campaign in this alone has rendered signal service to the industry.

The cooperative advertising campaign started in a small way, even as the farmers started. But the effect of it has been felt in the four corners of the earth. The British Isles, France, Germany, Italy, the Balkans, the Near East, South Africa, China, Australia and South America have all written letters about it, some from consumers and some from dealers seeking American connections.

In our country the knit underwear business this fall received an impetus it has not known for several seasons.

Returns from the campaign are already coming in, so much so that a larger fund will be expended this year than last.

* Secretary, Associated Knit Underwear Manufacturers of America, Utica, N. Y.

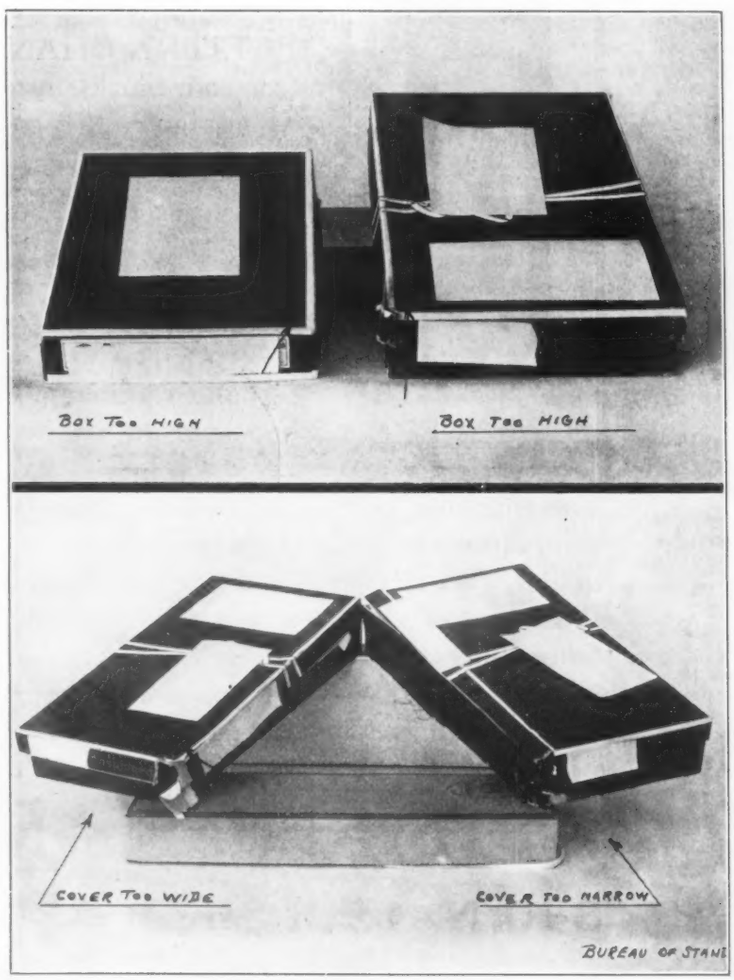
Standard Hosiery Packing Desirable

National Association of Hosiery and Underwear Manufacturers Cooperating in Investigation with Bureau of Standards

By *John Nash McCullaugh**

DURING the recent conference of jobbers in New York City, one of the principal topics of discussion was the need of standard packing, shipping cases, pasteboard boxes and colors of papers used in covering boxes. It was brought out by one manufacturer who addressed the con-

* National Secretary, National Association of Hosiery and Underwear Manufacturers.

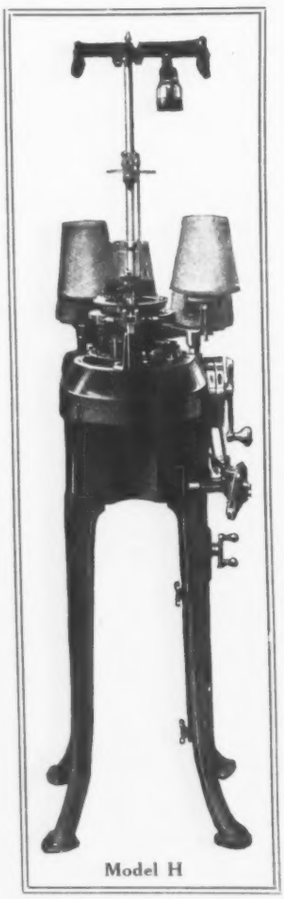


Boxes Broken in Transit

Standard Hosiery Machines

Revolving Cylinder Type

All Sizes from 2¼″ to 3¾″ Diameters



Model H

Some of the reasons why with a standard Model H Knitter one can get a higher production, change patterns in from two to five minutes, place more machines in a given floor space, and have positive yarn changing.

PRODUCTION—Unequalled because of the substitution of a cam for the usual crank movement, from which reciprocation is derived, thus eliminating all possibility of picker trouble and making possible a high speed while knitting the heel and toe. Only one driving pulley is used.

PATTERN CHANGE—The yarn changes are made from unitary cam blocks instead of from a lot of cams and consequently we guarantee that changes of pattern can be made in from two to five minutes.

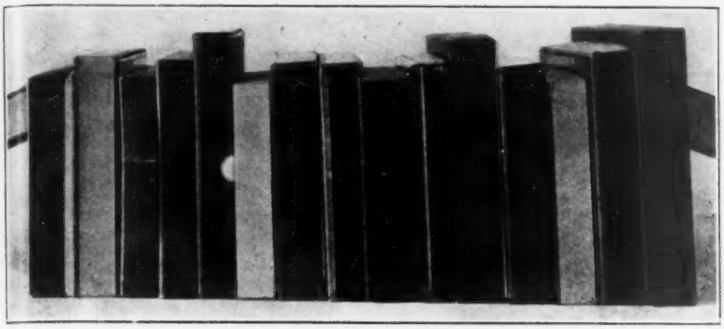
MACHINE WIDTH—The extreme width including pulleys and turning handle is only 16″. A comparison with other machines will convince one of the great saving in floor space.

YARN CHANGING—No springs (which might fail to act with certainty) are employed; but instead the yarn fingers are moved both into and out of action positively.

This machine, because of its appearance, design, simplicity, materials used, workmanship, durability and results obtained, we know will meet the demands of the most particular. We never make claims which we cannot prove and guarantee. Write for our illustrated catalogue which proves clearly and concisely all that we claim. Among other things, you will be interested to learn how we obtain a speed on the heel and toe which is 25% faster than that on other machines and yet protect the pickers so that they operate with greater ease and certainty.

Standard Machine Co.

340 N. 12th Street **Philadelphia, Pa.**



Variation of Lengths—Side View

ference that at one time his mill had to carry no less than 42 different kinds of boxes to meet the needs of the mill's jobber customers and the manufacturer asserted there would be a distinct saving if some degree of uniformity might be arranged that would tend to bring about better deliveries and greater efficiency.

The need of standardization in industry is becoming more and more acute every day. Several months ago the National Association of Hosiery & Underwear Manufacturers appointed a committee for the purpose of investigating waste in industry and to make suggestions for its elimination in the various phases of production and distribution.

Bureau of Standards' Cooperation

One of the first matters to be investigated was that of packing and it was found that many manufacturers were using boxes larger than necessary for the contents. The investigation revealed such a serious situation that the cooperation of the Bureau of Standards of the Department of Commerce was enlisted and the investigation continued along scientific lines. The discovery that boxes larger than necessary were being used led to a computation of the financial loss from such waste of material and the sum ran into millions of dollars. The use of too large boxes means not only more expense than involved for boxes of proper size, but also that merchandise packed in too large boxes is less saleable. Nothing can affect the sale of hosiery, or any merchandise for that matter, so much as poor presentation, and hosiery loosely packed in a box that is shaken about in transit is bound to present a less attractive appearance when placed on the retailer's counter.

The wide range of sizes specified by hosiery manufacturers for their boxes is graphically illustrated by the photographs herewith, while the effect on the contents is also shown.

Of course it would be impossible to expect that all hosiery manufacturers will use precisely the same size boxes, but I venture to believe that if a standard size were adopted a large majority of manufacturers would fall into line. This would bring about considerable saving that would find its reflection ultimately in the cost of the merchandise.

Recommend Scale of Standards

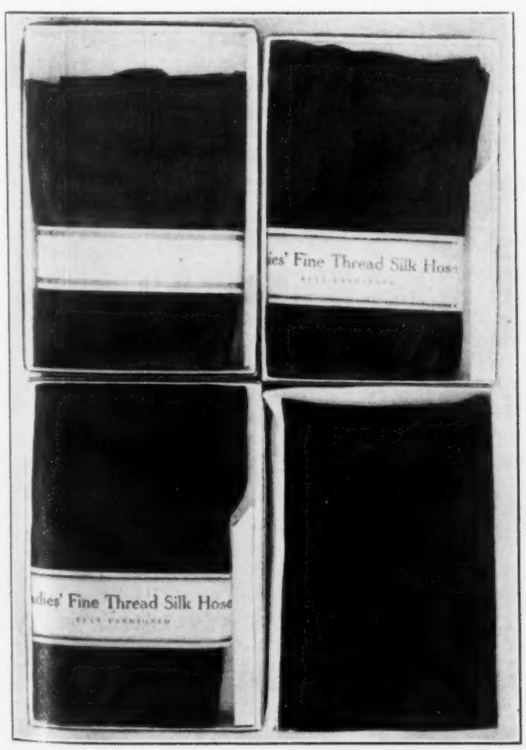
Our Association's committee and officials of the Bureau of Standards are now working on a scale of standards to be recommended for the packing of various types of hosiery in quarter, half and one dozen boxes, bearing in mind the different weights of hosiery of silk, wool and cotton. Standardized boxes for carrying a standard number of hose will eliminate excessive waste which the hosiery manufacturer is now paying for.

Investigate Breaking Strength

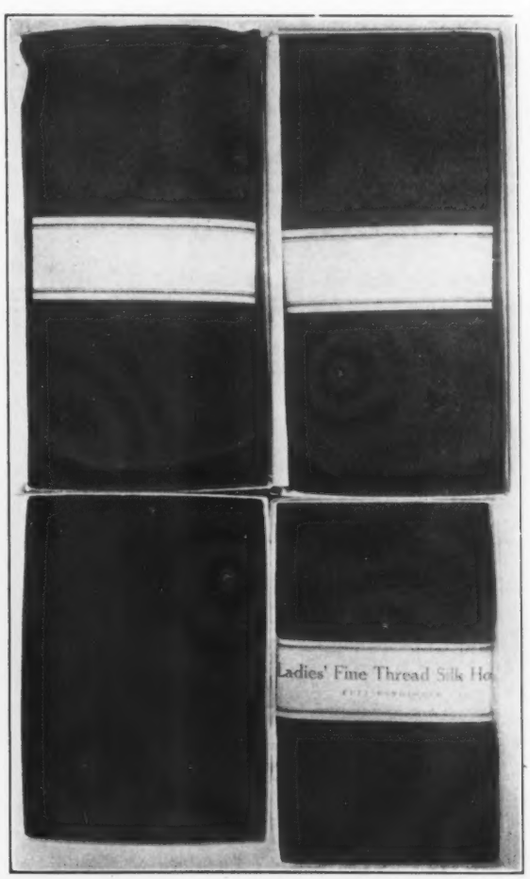
Another point that is receiving attention is the breaking strength of strawboard used in boxes today, a matter that has never been thoroughly analysed and considered by mills when ordering boxes.

Of course a standardization of box sizes will in no way deprive the manufacturer of the individuality he desires, but it will certainly affect his storage space, and will also help the retailer in stocking the merchandise on his shelves.

Contrast Between Two Types of Packing Shown in Adjoining Views



Poor Packing



Good Packing

Style Tendencies in Textiles

(*Continued from page* 168)

de chine, plain faille and crepes of the heavier type, Roshanara for example, will be repeated and will meet with the success their smart and durable qualities deserve.

Development of Cloky Materials

Blistered silks, offered by Paris as a novelty last spring, were effective, but not practical, as the raised patterns pressed out in places long before the costume had given the proper service. This fact offered our textile producers a problem to solve, which they have done to their satisfaction in this season's collection of cloky materials. Few are offered which show the entire surface blistered, as was gaufre of last season, but are woven with puffed-up patterns spread broadcast over a crepe ground, with an overlay of invisible net, non-stretchable, insuring the life of the pattern, as it holds it in place.

Many of the sport silks are truly suitable only for sport wear, the jacquard and printed sport satins and many of the printed crepes being in this class. Others, however, are not only excellent for sport costumes, but will fashion a charming frock for Palm Beach or town wear. In this group Hottentot is an interesting novelty; it is an outdoor silk with a crisp crepe weave printed in patterns which are charmingly illusive, high colors on white being particularly pleasing.

Rhapsode, an artificial silk sometimes woven without a decided pattern, is, owing to its metallic luster, a silk suitable for far more formal occasions than country club or sport wear. When patterned, however, the effect is smart rather than rich and it then takes its place well in the foreground of the sport silk group.

Chenille-bordered fabrics are handsome for the making of costumes and all-over chenille, introduced by H. R. Mallison & Co., Inc., is an exquisite fabric for evening wraps. Paris has decreed a white season in relief from the continued vogue for gay-colored prints and chenille in all white is truly an artistic example of the textile weaver's art.

Silk ratines appear in various weaves and a wide range of colors. Here is indeed a smart and practical silk for country use and smart tailored suits of it will undoubtedly be offered for town wear. Plain weaves are practical and the novelty effects, drawn checks and two-toned weaves, are decorative enough in themselves to eliminate trimmings.

Influences in Cotton Lines

There is every indication that this will be a big cotton season. Palm Beach wardrobes must include several cotton frocks and suits, cotton garments must be worn out of town in summer, and there is a steady increase in their popularity for town use.

Many of the imported cottons follow the silk patterns so closely that they may be handled to make the same models. In this group we find the printed voiles, new patterns being

The call today is for Full-Fashioned Hosiery

It's the kind women wear—dealers sell day-in, day-out —the big year-round hosiery that keeps the wheels humming steadily.

The "Reading" Full-Fashioned Knitting Machine is making quality hosiery, making money, earning Good Will for most full-fashioned hosiery manufacturers in the country. It is sure, quick, easy in operation. It is economical in power, labor and floor space. Its continuous operation is assured by the fact that a stock of duplicate parts is always available for immediate shipment should occasion require.

You'll use the "Reading" some day. Why not investigate it now?

TEXTILE MACHINE WORKS
Reading, Pa.

Miss Full-Fashioned says:

"Women prefer full-fashioned hosiery for the same reason that they want made-to-measure dresses. For full-fashioned hosiery is actually knit to the shape of the leg and that means better fit, better looks, better wear."

The "READING"

FULL-FASHIONED HOSIERY MACHINE

offered, printed crepes and a variety of ratine weaves which include a fish-net pattern, woven in cross stitch, drawn checks and squares and interesting novel effects.

Heathermist ratine appears in two colors showing a flake of plain color. Eponge Matte is frankly copied from a wool pattern and shows a surface which appears to be braided. An eponge in a plain color showing a two-colored stripe in contrasting shades is new and will adapt itself gracefully to the making of separate skirts or two-piece suits.

The success of printed voile is well established; it is a proven material and new patterns are offered every season. Very light weight, but closely woven printed crepe is newer and here we find a material like Georgette in texture and repeating closely the patterns found in that fabric. A feature of some of these crepes is a silk selvage.

Plain and plaid cotton crepes are slightly heavier and those showing a Paisley pattern are heavier still; none, however, is bulky, for all are decidedly soft and pliable.

Embroidered voiles take their place in the cotton group as formal fabrics, while those showing a ratine stripe, new this season, are excellent for sport and general use. These appear with narrow stripes making checks and wider stripes, with a line of the voile woven through the center.

Embroidered tissues are charming, both in texture and color. Leno effects are good and chain stitching embroidery gives an air of formality. A checked tissue with an embroidered dot in the center of the check achieves artistic success when shown in such color combinations as French blue, white and gold.

Plain colored cotton crepes are already going strong, but many of the manufacturers, believing that printed silks will take the place of cretonne, have changed their cretonne patterns to ones much more daring than those of last season and are frankly offering them as draperies. Several very small floral patterns, however, are shown for the making of children's romper suits and aprons.

Organdie, embroidered all over in tree and bird patterns in a contrasting color, closely resembles in pattern the embroidered wool Jerseys now being worn. A lavender organdie patterned in pale yellow is delightful and the black and white effects are as striking as ever.

One manufacturer is showing almost 500 different patterns in ginghams alone and certainly the checked ginghams embroidered with a motif in a contrasting color offer a change to the woman devoted to this most durable and fadeless product.

From England comes several interesting cotton fabrics in the eponge or ratine weaves in colors rather unusual in the cotton field. For example, a heather mixture eponge in green, tan and black shows a wide solid stripe and a wide stripe formed of several stripes. These appear in coral, yet the combination is artistic.

Every type of plaid is good, for these plaids make smart one-piece frocks and will adapt themselves to suits and separate skirts. A fine English cotton crepe in white plaided in brown is smart, while a white ratine, heavy weight, shows a plaid in every color of the rainbow.

It has already proved to be a good all-white season in figured dimities, Irish poplin and madras shirtings. Dotted Swiss never seems to go out of favor, but the small dot is perhaps better than the large.

Last season's textiles appeared to have reached perfection, but this year's products are even better. We have every occasion to be proud of our domestic materials, which certainly compare most favorably with any imported and in many instances prove better. The variety on this side of the water seems endless and the quality is of the best.

Gobelin Tapestries Reproduced

Application of Art to Industry Through Substitution of Power Woven Art Fabrics

THE practical application of art to industry and especially to textiles is the thought which has inspired the efforts of the La France Textile Company, Frankford, Philadelphia, to develop anew, as it were, the ancient art as exemplified in the form of tapestries.

The company recognized the artistic and remarkable effects secured even in the most primitive examples of these hand-woven fabrics of the early ages with their strong appeal to the imagination and the love of the beautiful. Therefore, it has been their constant endeavor to translate

this time honored art, as represented by the famous Gobelin tapestries of France, into modern terms as expressed through the medium of the jacquard power loom. With that end in view, they have been diligently experimenting with the possibilities of this modern equipment in order to obtain the refined and artistic qualities of design and color combinations in modern tapestries, while following and developing modern methods.

Growth of Business

That a decided measure of success has been attained can be judged from the fact that their business has materially grown. Starting a little less than five years ago, when their total gross business amounted to about $100,000 annually, they have reached the impressive total of between two and three million dollars annually. They are at present operating 150 jacquard looms on tapestries and upholstery fabrics. Besides this equipment, however, many other looms are engaged on this work through a co-ordination of effort in the same direction by other manufacturers who also appreciate the value of the ideals to which they are striving.

The greatest encouragement came, when, during the period of depression, approximately May, 1920, fabrics of artistic worth produced through combined efforts of artists, designers, and weavers, were accepted favorably by the public, forcing the company to go on a day and night production schedule, because the constant addition of looms was not sufficiently rapid. This condition prevails today, and affords justification for expansion of the original idea.

Free Tuition to Students

In order to provide the necessary inspiration and originality of designs for new fabrics, the company has secured the interested co-operation of a number of artists and art students, in introducing worthy classical and modern designs into the tapestries. In furthering the revival of tapestry weaving as an art, and also to assist in the development of a school of distinctly American design, the company has established what is known as the La France Art Institute. Here free tuition is offered to those who desire to participate in the work the company has undertaken, and those who possess latent talent have an opportunity to develop it along proper lines of artistic expression.

However, not only must the artistic ability be taught to express itself in proper form, but at the same time the requirements and limitations of the weaver's art must be considered.

Furthermore, the mechanical side needs attention. This requires the careful cutting of the jacquard cards by which the power looms are properly controlled in the construction of fabric designs. The importance of knowing just what colors are to be used in the various yarns and how they must be manipulated in the weaving so that the exact effects will be brought out is recognized. Here again is expressed the practical side of the weaver's art which means that the tapestry produced will be either one of real quality or a mere commonplace job.

Pictorial Tapestries Produced

A recent demonstration of the possibilities of this newly revived art has aroused interested and favorable comment through the showing of the La France pictorial tapestries, which are the most recent accomplishment in these fabrics. Original paintings have been reproduced in woven tapestries in sizes approximating 10x12½ inches, which are framed under glass and with mat, or merely with a frame. It is not the intention of the company that these pictorial tapestries shall take the place of oil paintings, but that they will occupy their own place among the fine arts in the same manner as the famous Gobelin tapestries and similar works.

Internationally known artists and art critics have approved of these pictorial tapestries or tapestry pictures because they carry with them all the characteristics and intricacies that textiles did from time immemorial

and have a place all their own among fine arts, especially because they have created or rather revived a field of their own and there has been no resort to any imitation.

These pictorial tapestries are woven exactly as Gobelin tapestries, but by the power loom. By this means it is possible to produce quantities of identical copies. Because of their moderate cost, due to quantity production, it is pointed out these tapestries will be available to the average individual.

The accompanying illustrations of examples of these works of art will indicate what it has been possible to accomplish, not only in the way of pictorial reproductions but also in examples of finished tapestries and upholstery fabrics. It is by this means that the company hopes, through their efforts and the work of the La France Art Institute, to create a distinctly American school of design.

Effect of Raw Material

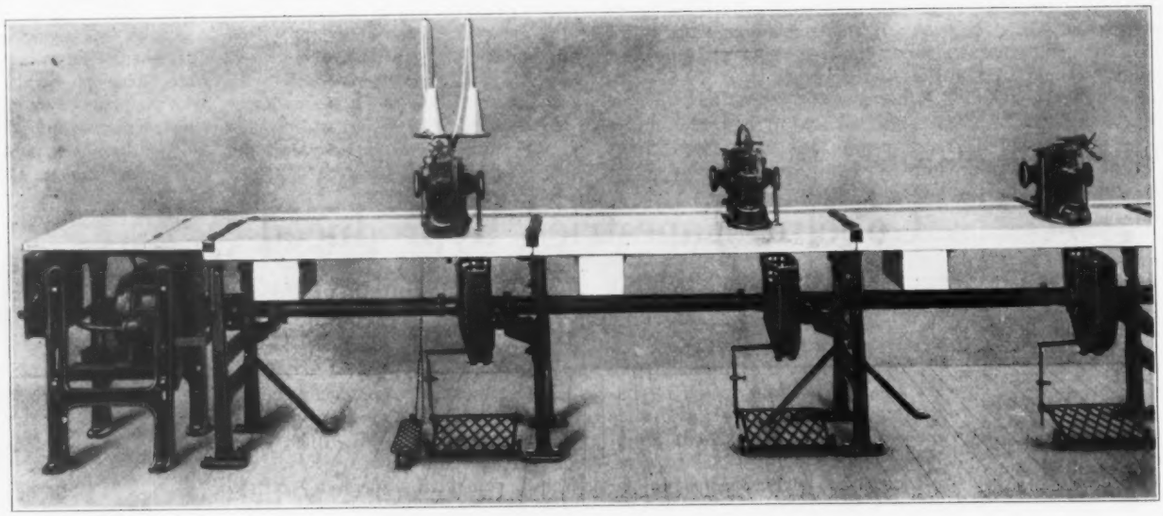
Good Outlook Is Made Uncertain by Rising Costs

By *W. E. Beattie**

The outlook in the textile industry appears to me to be very good at the present time. There is danger that the raw material will advance in price to a level which will chill the sale of manufactured goods. This is one of the uncertain features regarding the industry.

If the European situation should clear, the immediate effect might be an advance in cotton, which, under existing conditions, might temporarily work to the disadvantage of cotton mills. However, taken as a whole, I am optimistic regarding the future of the cotton manufacturing business.

* Chairman of the Board, The First National Bank, Greenville, S. C.



American Ball-Bearing Seaming Table

American Safety Tables—for Service

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No Lower Belts.
No Special Transmitters.
No Loss of Power.
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Increased Production.
Lower Compensation Insurance.
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Demountable Table Tops.
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Satisfied and Contented Employees.
Clean and Sanitary Surroundings.

THE AMERICAN SAFETY TABLE CO.

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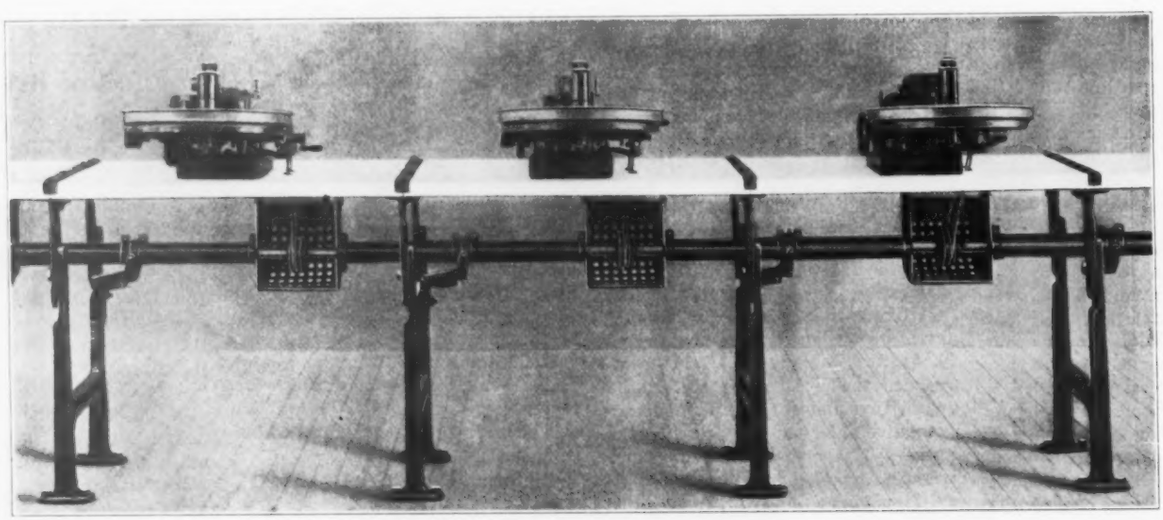


American Ball-Bearing Looping Table

The Future of American Dyes a Chinese Puzzle

Developments of 1922 Overshadowed by Effect of Those Events to Be Expected in 1923—No Opportunity as Yet to Determine Practical Application of New Tariff Act—Many Merchandising Problems Still to Be Faced—Year Brought Greater Stability in Dye Prices

THE writing of a general dyestuff article this year requires a prophet rather than a historian. Important as developments in the last twelve months have been, the results of these events are still in the future. Nor should this prophet be a second rater; the complications of the present situation call for more vision and courage than the average dopester possesses. Before this article was prepared the writer, realizing that he did not have these necessary qualifications, made it his business to ask the opinions of men in the industry as to the outlook for 1923. He found an almost universal hesitancy on the part of these men to express themselves with regard to the effect of developments last year upon the developments this year.

To understand this spirit of caution it is necessary to touch briefly upon the outstanding event of 1922 in dye circles, namely, the passage of the new tariff act on September 21. This act, in its final form, eliminated the selective embargo which had protected the American industry since the early post-war days and substituted tariff rates alone. The duty on intermediates was placed at 55 per cent ad valorem and 7 cents per pound for the first two years after the passage of the act; and at 40 per cent ad valorem and 7 cents per pound beginning at the end of the first two years. The duty on dyes was placed at 60 per cent ad valorem and 7 cents per pound for the first two years after the passage of the act; and at 45 per cent ad valorem and 7 cents per pound beginning at the end of the first two years.

In the case of both intermediates and dyes the ad valorem duty is to be based upon the American selling price of any similar competitive article manufactured or produced in the United States; if there is no similar competitive article manufactured or produced in the United States the ad valorem rate shall be based upon the "United States value," defined as "the price at which such or similar imported merchandise is freely offered for sale, packed ready for delivery, in the principal market of the United States to all purchasers at the time of exportation of the imported merchandise in the usual wholesale quantities and in the ordinary course of trade, with allowance made for duty, cost of transportation and insurance, and other necessary expenses from the place of shipment to the place of delivery, a commission not exceeding 6 per cent, if any has been paid or contracted to be paid on goods secured otherwise than by purchase, or profits not to exceed 8 per cent, and a reasonable allowance for general expenses, not to exceed 8 per cent, on purchased goods."

What This Means

For the purpose of considering the possible effect of these provisions it is not necessary to review the struggle which was waged during the first nine months of 1922 and which was merely another act in the drama which has been published serially in these columns for the last few years. Much of the detail of this fight, including the famous Shortridge hearings and the animus developed on both sides, is ancient history and has little bearing upon the situation at present. The only point worth repeating is the fact that dye manufacturers had claimed all along that tariff rates alone were not sufficient to protect the industry from the sort of competition to be expected from Germany; and that, when the embargo seemed definitely beaten and rates of 75 per cent ad valorem and 10½ cents per pound on intermediates and 90 per cent ad valorem and 10½ cents per pound on dyes were substituted by the Bursum amendment, last minute kaleidoscopic changes included re-insertion of the selective embargo by the conference committee, rejection of this report by the House, and final adoption of the rates given above.

The immediate reaction on the part of dye manufacturers was the belief that these rates were far too low for adequate protection and that the elimination of the embargo meant eventual disaster to the domestic industry. The extent to which this belief was warranted is still a matter of personal opinion and conjecture because the four months which have intervened since the passage of the act have not provided sufficient time for any real experience with German competition under these new provisions.

The only definite statement that can be made with assurance is that the initial effect of the passage of the tariff act was beneficial. After going along from month to month for three years without any definite assurance of what form of protection was to be given the industry, dye manufacturers at last had a definite basis on which to work. Whether satisfactory or not, a well defined status is always to be preferred to uncertainty. The immediate result was that market conditions became more stable and the ridiculous variations in prices which had featured the trade since the depression set in were materially reduced. It must be emphasized, however, that this effect was largely psychological and was not based upon any real knowledge as to the extent to which German producers would be able to compete in the domestic market as a result of the new rates. The new year will tell a great deal of this story, and here is where the prophet comes in or would come in if he could be found. It is possible, of course, to get unlimited opinions as to this matter, but there are so many qualifying phrases to such opinions that any positive statement based upon these thoughts is impossible.

In the first place future competition from Germany rests largely upon the industrial status of that country, and if there is anything more indefinite than this, the writer has failed to encounter it. Reports all the way from unusual affluence to abject poverty have come out of that country and have been submitted by travelers there. Definite propaganda has been charged to the Germans who have been described as intentionally playing poor in order to get maximum consideration on the reparations question. The writer has neither the ability nor the inclination to discuss international affairs, and consequently can only leave the future industrial situation in Germany hanging in midair, which in fact seems to be its favorite position at present.

Furthermore, even if it becomes definitely known just how far Germany is to recover her prestige as an industrial country, it is still an open question whether the dye manufacturers in that country will wish to play the interesting game of absorbing losses for a period of years in the hope that eventually cut-prices will reconquer for them the American market. It is also a question to what extent they will succeed in getting the aid of the new Government in this matter, and whether such aid will be on the same scale as was true during Imperial days. Then there is the American side to be considered. Granted that a price war might be faced, the industry in this country is too new to furnish a definite basis for evaluation. It has not been tested under conditions of open competition, and it is probable that even the dye men themselves do not know to what extent the industry, in its present stage of development, can withstand such attacks.

Other Phases of the Problem

The broad general problem of the extent to which the domestic industry will be able to continue to prosper and develop under present conditions is flanked by numerous other complications and considerations which are still in the puzzle stage. One of the first opinions offered by dye men regarding the effect of the new tariff rates was that these would prove most disastrous to smaller dye manufacturers and would probably result in a narrowing of the field. This view was supported by the contention that the specific duty would act as a real protection to tonnage colors selling at low prices, but would have no noticeable effect upon specialities marketed at considerably higher levels. Since many of the smaller firms concentrate on specialties, it is held that they will be most badly hit by foreign competition.

Then, too, there has been much confusion with regard to the application of the dye sections of the tariff act. The term "United States value" referred to in the law was generally misunderstood, but this misunderstanding has been partially cleared up by statements from Washington. Probably the most difficult phase of the administration of the act is the differentiation between competitive and non-competitive products. This subject has been discussed in numerous conferences between dye manufacturers, importers, consumers and customs officials. At the time of writ-

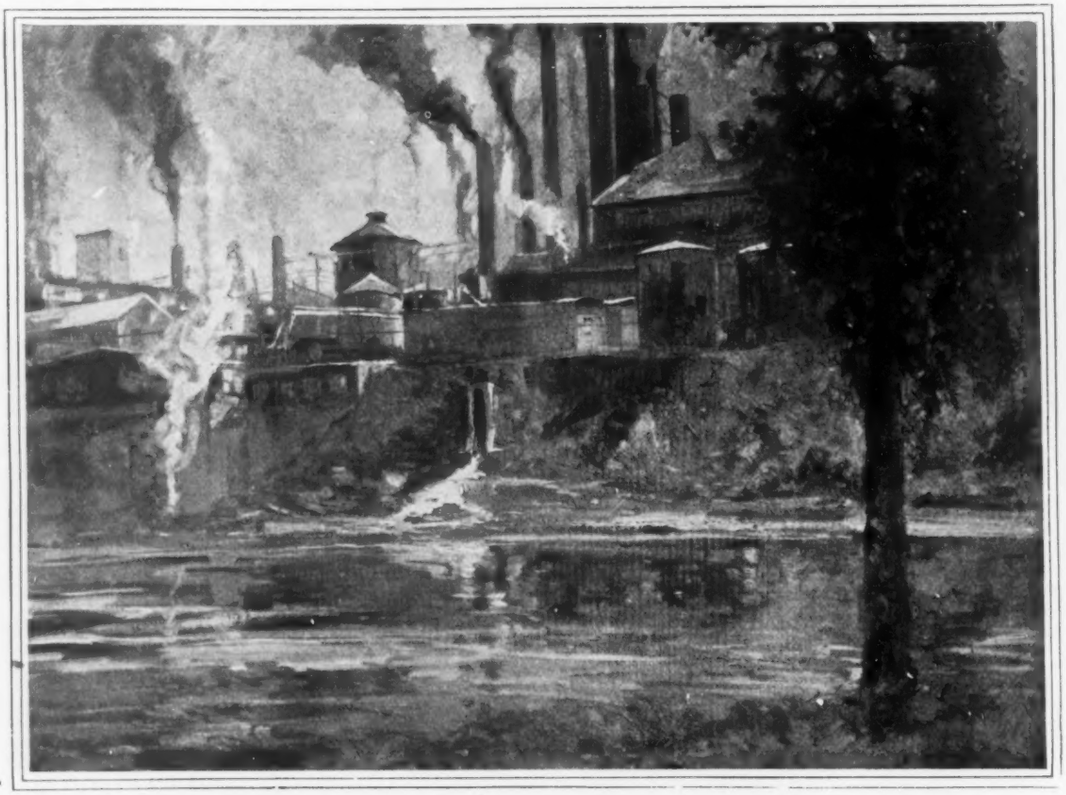
DYE PRODUCTION FOR LAST FIVE YEARS

(From U. S. Tariff Commission Census)

The publication of the Census of Dyes and Other Synthetic Organic Chemicals for the year 1921 by the U. S. Tariff Commission permits the presentation of the following figures showing production of dyes in the United States for each of the last five years in comparison with the year 1914. The average price per pound for each year is also printed below:

	No. of Firms	*Dyes Produced*	*Value*	*Average Price Per Lb.*
1914...	7	6,619,729 Lbs.	$2,470,096	$0.37
1917...	81	45,977,246 "	57,796,228	1.26
1918...	78	58,464,446 "	62,026,390	1.06
1919...	90	63,402,194 "	67,598,855	1.07
1920...	82	88,263,776 "	95,613,749	1.08
1921...	74	39,008,690 "	32,370,000	.83

TRADE DOW MARK



Section of Plant Where Midland Vat Blues Are Made

TRY MIDLAND VAT BLUES
For Complete Satisfaction

The remarkable properties of Midland Vat Blue dyes give them great value in addition to their manufacturing advantages.

Nowadays the consumer decides whether sales of textiles shall be restricted to small one-time orders or whether they get into the weekly re-order column.

Affinity for the fiber gives Midland Vat Blue a depth of penetration that produces a live, deep, rich, attractive color—a color as pleasing to the ultimate buyer as to the textile manufacturer.

With this depth of penetration Midland Vat Blue dyes have proven their fastness against light, washing and mechanical erosion and are noted for the remarkable ease of reduction.

So, in Midland Vat Blues you have reliable, easy-to-handle, sales-getting dyes, tested and used by the foremost mills and manufactured by America's first commercial producer of Synthetic Indigo.

Try Midland Vat Blues for complete satisfaction, for the effect on your plant processes and your sales.

Selling Agents: Ciba Company, Inc., Cedar and Washington Sts., New York City

Branches: Boston, Philadelphia, Chicago, Providence and Columbus, Georgia

THE DOW CHEMICAL CO.

MIDLAND, MICHIGAN & NEW YORK CITY, U.S.A.

ing, nothing definite has been drawn up, but the recent appointment of an advisory committee consisting of two representatives of the manufacturers, two representatives of importers, two representatives of the manufacturing-importers, and two consumers, to confer with the appraisers indicates that some basis will be reached--possibly before this appears in print.

Manufacturing Progress

In another article in these columns appears a survey of the highlights or progress in the development of dyes by the domestic industry during 1922. Official statistics regarding quantity of production will not be available until later in the year. The report for 1921 was published during last year and showed that the domestic output of dyes in 1921 by 74 manufacturers totaled 39,008,690 pounds, a decrease of 56 per cent. from that of 1920. This reduced output was accounted for by loss of most of the export trade, large stocks carried over from the previous year, and finally the general business depression. It was noted that progress was made in the production for the first time in the United States of a large number of dyes of greater complexity and more specialized application.

Price Movements

One of the greatest achievements of the year from a market standpoint was the realization of greater stability in dye prices. The decline of the business curve in 1920 and 1921 affected this trade to a particularly marked degree because the newness of the industry and the uncertainty of its future made manufacturing costs difficult to ascertain. There appeared to be no well defined level in quotations and as holders of dyes became pressed for cash, distress stocks were offered, often at ridiculous figures. Almost unlimited variation could be noted on prices asked for any one color and consumers found themselves confronted with a bewildering situation. The result, of course, was utter lack of confidence in the market and routine buying of the most limited proportions. Contract operations declined materially, and all business was on a hand-to-mouth basis.

As the year 1922 progressed and general business conditions improved, this uncertainty was gradually lessened. The passage of the tariff act and the reaching of a definite status for the future seemed to have a decidedly beneficial result in this connection, so that as the year closed price ranges in different sections of the market were decidedly more narrow and most of the revisions had been accomplished. Contract business became more general and sales during the latter part of the year were of good volume. The coal and rail strikes stiffened the price situation in crudes, and this was reflected in intermediates, and to some extent in finished dyes.

The Future

As has been emphasized above, the future of the domestic industry is difficult to interpret. There is no doubt that Germany will make every attempt to regain her position in this market as soon as her internal affairs permit. Furthermore the export field for domestic manufacturers presents a serious problem. This country has not succeeded in holding the trade which it built up during Germany's isolation and faces the necessity of securing a wider outlet for American dyes if the industry is to be conducted along the most efficient lines.

The realization of this ambition involves considerations quite apart from purely production problems. The gaps in the line of American colors are being rapidly filled, but the merchandising phases of the situation require more attention. This fact was emphasized in these columns last year, but repetition is necessary. There is still a great deal of duplication of effort, and products for which there is a limited demand are being produced by too many concerns. This contention does not fit in with the claims of monopoly advanced in certain quarters, but is borne out by the opinions of men in a position to know. The tremendous overhead involved in research and manufacturing activities in the coal tar industry makes it essential that the field be carefully surveyed before particular colors are produced. There appear to be grounds for hope that the Synthetic Organic Chemical Manufacturers' Association, in co-operation with Government bureaus, will develop statistical information which will aid domestic producers to make their plans more intelligently and to avoid unnecessary duplication which does nothing more than increase the selling price of their product.

Dye Research

There is also the necessity for more concentrated effort along the lines of dye application research, fastness requirements, and service to consumers if foreign competition is to be met as it develops. This is a requirement for the holding of the domestic trade, but it is possibly even more essential in the regaining of foreign markets.

The few years which have elapsed since this country was first faced with the necessity of producing her own dyes have not been sufficient to develop a well rounded and efficient industry. The attainment of this ideal demands active co-operation between manufacturers and consumers. The realization of such co-operation has been seriously handicapped by the friction and ill feeling which have characterized the whole situation during the years since the war. It is to be earnestly hoped that the settlement of the legislative problem, realized last fall, and the adjustment of the difficulties in connection with the administration of the act now under way, will eliminate the last of this friction, and that the next few years will see American dyes holding their own, not because others are unavailable, but because the domestic products are the best and cheapest.

Hopeful for Natural Dyes in 1923

First Part of 1922 Disappointing, but Improvement Noted Later —Prices Firm Despite Dullness

A HASTY survey of market conditions in natural dyes during 1922 would leave a feeling of pessimism which is not warranted by the facts. During much of the year business was of an extremely dull and routine nature. Particularly was this true during the early part of the year and manufacturers of these products admitted that operations were disappointing. However, as the year progressed, interest broadened and the latter part was about an average period. Taken as a whole developments for the year were subnormal, but in spite of this fact prices have shown rather remarkable stability. There were times when general reports of business done would seem to make a sharp break inevitable, but at no time has this resulted.

This indicates that there has been an undercurrent of confidence which has helped to maintain levels at first hand. Possibly the answer is that this whole problem of the market opportunities in natural dyes, particularly as applied to textile manufacture, is receiving more sane consideration than it did during the early post-war days, when comparisons of business done were made with figures realized during days when natural dyes were being used as substitutes for artificial colors. It was hopeless to suppose that all of these uses could be continued because in many cases dyewoods were not suitable. However when business started to fall off, this decline was not always accepted as natural, but was often interpreted as meaning that the use of natural dyes in textile manufacture was passing out entirely.

As a matter of fact there is no reason at all why the use of natural dyes in this industry should not continue along the same lines which prevailed before the unusual war-time conditions. This fact is more generally recognized at present, and as the year closed the consensus of opinion among manufacturers of natural dyes was that 1923 would be probably above the average, even though this prediction was of course qualified with the provision that nothing unforeseen develops to prevent the business progress which seems to be in store.

Outlook Good in Chemical Trade

Year Closed with Contract Business Broad, Prices Firm, and Future Advances Not Improbable

THE market for industrial chemicals during the year 1922 was characterized by neither pronounced advances nor sharp breaks. Instead it followed an unusually even course, with the prevailing tendency toward greater firmness and increased confidence. The early liquidation achieved in this trade when the depression first set in has borne fruit during the year just closed.

Although at no time could the market be considered in the process of an actual boom, interest has broadened steadily and, even during periods of seasonable dullness, there appeared to be no lack of fundamental firmness. As a result price movements have ben decidedly narrow in range and fluctuations from month to month restricted.

Probably the outstanding characteristic of the market as the year developed was the broadening of contract operations on the three chemicals of particular interest to textile manufacturers: Caustic soda, soda ash and bleaching powder. During the latter months of the year producers of these materials became so well taken care of as far as the immediate future was concerned that their attitude grew more and more independent. Prices at which contracts were taken did not advance under this pressure, so that, at the year end, future quotations on caustic soda were $2.50 per hundred pounds, basis 60 per cent. works; on soda ash, $1.10 per hundred pounds in bulk, $1.20 in bags, and $1.40 in barrels, basis 48 per cent. works, and on bleaching powder approximately $2 per hundred pounds.

There was every indication as the year closed that the market was at a fine point of adjustment and that advances in the early part of 1923, particularly on the chemicals mentioned above, were not at all improbable.

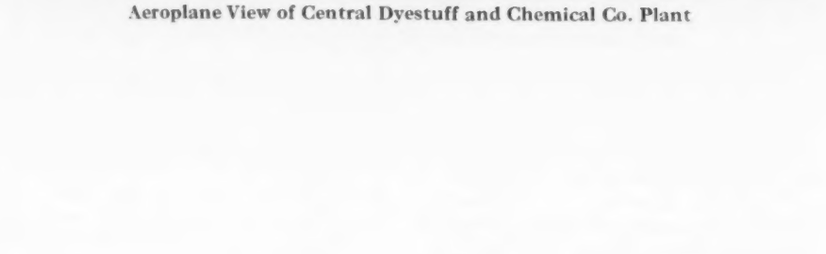
Throughout the list of chemicals stability has been the keynote, and there appears to be no reason why, with the continued development in general business now foreshadowed, the chemical market should not be characterized by firmer quotations and larger transactions during the year to come.

While complete foreign figures for the year 1922 are not available, the statistics on exports for the first eleven months give an index to the extent to which foreign markets in chemicals have been held during the year. Total exports of chemicals and allied products during the first eleven months of 1922 amounted to $97,215,547 as against $96,155,267 during the same period of the preceding year. Of this total, chemicals alone amounted to $47,668,535 during the eleven months ending November, 1922, as against $49,625,532 during the corresponding period of 1921.

MANUFACTURERS OF

Acid—Basic—Chrome—Direct

COLORS



Aeroplane View of Central Dyestuff and Chemical Co. Plant

CENTRAL DYESTUFF & CHEMICAL CO.

Main Office and Works : NEWARK, N. J.

ESTABLISHED 1898

Progress in Cotton Dye Manufacture During 1922

American Makers Offer Colors with Valuable Properties—Fastness to Light, Washing and Storage Now the Desideratum—Year Continues the J-Acid Stage of Manufacture—Rapid Advance in Dye Making During the Coming Year Is Predicted

By *Oscar R. Flynn**

THE year 1922 has seen some substantial additions to the list of American cotton dyes. What has been done is the more creditable as conditions have not been favorable to the expenditure of money for chemical research. The sword of the tariff Damocles has been hanging over the dye and intermediate maker for the greater part of the time.

As we know, in the first frantic reaction to the situation created by the war, any kind of color which would "stick" to cotton was sought after and gladly accepted by the dye user. He is now more discriminating and the dye maker is attempting to satisfy the new demands by efforts for the past two years in the direction of obtaining dyes with better fastness properties, not only to storage, which is vital, but to light and washing.

Cotton dyes are a particular variety of acid dye; any cotton dye will dye wool or silk if applied in the same way as the so called acid dyes proper, i. e., in the presence of acid. The principal difference between a straight acid color and the so called cotton color is in the presence of certain atomic groupings which give the dye a specific attraction for cellulose. These groups or intermediates we may call "mordant components."

The simplest mordant component, the one first discovered, and the one first reproduced by the American dye makers, is benzidine. Combined with a few of the simpler developers it gave rise to the dyes which in a previous article were described as making up the congo stage of American dye making.

Soon other mordant components similar in constitution to benzidine, viz., tolidine and dianisidine followed. H-acid and its near related developer, trisulphon acid were reproduced and the whole gamut of colors was obtained ranging from red to violet and including brown and black.

Di amido stilbene disulphonic acid, primuline, and dehydro thiotoluidine were added to the assortment of mordant components and by means of these and suitable developers or other treatment better yellows and fugitive but acid fast pinks and reds were obtained.

The production of gamma acid among the developers also marked a distinct advance in color making, and gave the dyer a faster red and violet and the first diazotizable black and the first black fast to storing. Resorcin as a developer gave brown with the same useful property.

The last two years are distinctly the J-acid stage of cotton dye manufacture. In J-acid we have a mordant component of great flexibility capable of imparting its useful mordant quality to a great variety of dyes, many of which are of superior fastness to light and storage. Among them we also find some of the best diazotizable cotton dyes.

During 1921, some of the more important Benzo Fast Scarlets were perfected by one large dye maker. These, as explained in last year's annual issue, are derived from "J-acid urea" and have the general formula:

$$A \rightarrow J^1.CO.J^1 \leftarrow B$$

where A and B represent the same or different diazo components and $J^1.CO.J^1$ the urea, which is here an azo component with mordant properties.

1922 has seen further development of these J-acid colors so that, at the present time, three of the largest of the dye concerns are preparing dyes belonging to this group, including the fast orange and one or more of the scarlet dyes proper. Except for the fact of a temporary shortage of J-acid, due to increasing demands for this valuable group of colors, their production may be considered to have made satisfactory progress.

Rosanthrene Dyes Produced

Last year has seen the introduction of another closely related series of dyestuffs by one American maker. This group is composed of the so-called rosanthrene dyes. The special property of these dyes is their ability to be diazotized and developed on the fibre into wash fast colors ranging in shade from yellow to bordeaux. A comparison of the structure of one of the simplest of these, viz., Rosanthrene O with the formula for Fast Orange S will show the general similarity between the rosanthrene dyes and the fast scarlet dyes of which the Orange S is the simplest member.

Or. S=Aniline → $J^1.CO.J^1$ ← Aniline

Ros. O=Aniline → $J^1.CO.C^6H^4NH^2$

Rosanthrene R, Rosanthrene A, and Rosanthrene O are now to be had. The same manufacturer is also offering Diazo Bordeaux 7B, and Diazo Light Red 7BL, which in all probability belong to the rosanthrene series.

Zambesi Black Manufacture

While considering the rosanthrene colors it will be well to call attention to the extension in the manufacture of Zambesi Black V, another developing color offered by only one dye maker during 1921, but now being offered by a competitor. While there is no danger of this product driving sulphur black from the market, it is nevertheless quite true that it has been adopted by many former users of sulphur black, notably the makers of high class hosiery and also thread makers. It is impossible to speak with any certainty at the present time concerning the constitution of this product; the chemist of one large dye concern, however, assures me that it is not a J-acid product.

Benzo Fast Black L

Another black not especially useful as a developing color, but conspicuous for its good working qualities and fastness to light, is in all probability a J-acid product. This is the very useful Benzo Fast Black L. When first introduced by an American dye maker back in 1921, this product was found to be different from the pre-war type. This difference consisted of a greater tendency for the hot solution to gelatinize. The effect of this tendency was to make it almost impossible to strain the dye solution, with the result that color spots often resulted from its use. During the present year this difficulty has been overcome by the use, the manufacturer states, of a mixture of the ortho and para amido salicylic acid instead of the pure para which had been used as an intermediate in the preparation of the dye when first put on the market.

Solamine Blue FF

Another light fast color new to the American manufacturer is Solamine Blue FF. This belongs to a group of dyes which have the general constitution:

$$A \rightarrow B \rightarrow C \rightarrow D$$

where A is aniline or H-acid, and C and D intermediates similar to Cleves acid in their ability to be coupled and then diazotized so as to assist in extending the chain of azo linkings. D is J-acid which gives the mordant quality. Dyes of this character while possessing superior light fastness have only moderate affinity for cotton.

Two other fast to light blues are about to be put on the market by a large manufacturer, viz., Fast Blue 4GL, and Fast Blue 2GL. It is impossible to state whether these are or are not similar in constitution to the Solamine Blue. There is no doubt, however, that they will be more useful on account of their clearer greenish shade.

A Light Fast Red

A light fast red is being supplied by two dye makers. This is described as similar to Benzo Fast Red 8BL. It is in fact similar in color and light fastness but differs in at least one of its reactions, viz., in its behavior toward salts of copper. Whereas the prototype is little affected in shade by after-treatment with copper compounds, the new product is turned into a violet. On this account it is impossible to use it in shading combinations which require after-treatment with copper. This product was reported as a J-acid color.

Two Fast Yellows

Two fast yellows not products of J-acid, viz., Fast Yellows 5GL and 4GL, have appeared during the last year which are superior to Chloramine Yellow, not in fastness to light, for that is impossible, but in their ability to be discharged and in clearness of tone. One of these is closely related to Chrysamine both in constitution and in its reactions. The similarity in constitution will be seen from the following formulas:

FAST YELLOW 5GL:

Di-Amido di-phenyl urea → Sal. Acid, Sal. Acid

CHRYSAMINE:

Benzidene → Sal. Acid, Sal. Acid

The absence of sulphonic acid groups results in general insolubility and compels the use of phosphate of soda or soap in dyeing and also accounts for the sensitiveness to alkali as well as the ability to be rendered faster to washing by after-treatment with metallic salts. The advantages in its use over Chrysamine are its somewhat greater fastness to light, its greener shade and its somewhat less sensitiveness to acid and alkali.

In the Fast yellow 4GL, the disadvantage of insolubility is absent; in other respects it very closely resembles the 5GL, although corresponding with its greater solubility, we have somewhat less fastness to washing, partly compensated for by greater equalizing power.

Diamine Scarlet B

In the list of dyes new for the year, we have several which depend for their mordant quality upon the old original mordant components benzidene and tolidene. One of these, Diamine Scarlet B (the only crystalline direct color known) is constituted as follows:

Benzidene → Phenol (Ethylated), G Salt

This dye is especially useful in dyeing mixtures of animal and vegetable fibres. It dyes silk, wool and cotton practically the same shade and depth of color. Like most direct azo colors

* Chief Chemist, Waldrich Bleachery, Delawanna, N. J.

R&H CHEMICALS

Tom, Dick or Harry stands over the mixing vats. He never heard of R & H, but he sees the difference in time and work and results when the buyer changes his order from the R & H standard of chemicals that fill the tank. R & H would stand for nothing if it didn't stand for the best obtainable results.

It is easy enough to be comfortable in ordering inferior materials the first and second times perhaps. But a veteran buyer of chemicals is apt to prefer the comfort of standing specifications for R & H stuff.

Experience is indeed a great teacher

41st YEAR

Oxolic Acid
Albone (25 volume Hydrogen Peroxide)
Alumina Sulphate, 17/18% Iron Free, Powd. Lump
Antimony Salts 65%
Bleaching Powder (Chloride of Lime)
Epsom Salts (Magnesium Sulphate)
Blue Stone (Copper Sulphate)
Glauber's Salt
Formic Acid 90%
Formaldehyde
Bichromate of Potash
Carbonate of Potash
Caustic Potash
Permanganate of Potash
Chlorate of Potash
Yellow Prussiate Potash
Caustic Soda
Sodium Acetate
Bisulphite of Soda
Solozone (Sodium Peroxide)
Sodium Sulphide—60% Conc. (Broken Pieces)
Sodium Sulphide—Crystals 30/32%
Tri Sodium Phosphate
Sugar of Lead, Brown and White
Zinc Dust
Y. P. Soda
Chlorate of Soda
Nitrite of Soda
Chrome Alum
Barium Chloride.

OXALIC ACID

FORMIC ACID

The ROESSLER & HASSLACHER CHEMICAL Co.
709 Sixth Ave., New York

BOSTON OFFICE: 40 Central Street

it is quite fast to light on animal fibre although fugitive on cotton. It was one of the first moderately acid fast red dyes discovered, and was much used before the introduction of the fast scarlets.

Congo Brown R

Congo brown R is now offered for the production of effects similar to those produced with the G brand, its redder shade making it more useful for certain effects. In constitution it is similar to the G brand, benzidene being replaced by tolidene as shown in the formula:

Sulphanilic Acid → Resorcin
Tolidine → Salicylic acid

Congo Brown R shares with the G the good fastness to storing based on stability towards acids and alkalies, due to the resorcin, also the ability to be made faster to light and washing by after treatment with metallic salts, due to the presence of salicylic acid in its make up.

Congo Fast Blue R

Congo Blue R is another old line color which has reappeared recently due to the fact that epsilon acid is now obtainable. It is faster to light than the ordinary type of blue though probably not as fast as the FF brand whose constitution was described above. It was formerly used extensively in dyeing draperies. This greater degree of fastness it owes to the presence of the epsilon acid. It is constituted as follows:

Epsilon Acid
Tolidine → Alpha Naphthylamine
Tolidine → Epsilon Acid

Erica Pink

Epsilon acid has also made possible the production of the old Erica Pink made by coupling epsilon acid with dehydro. On account of the stable epsilon acid, this pink is much faster to light than the Diamine Rose type, made from "dehydro" and that modification of H-acid obtained by Sandmeyer's reaction. The sample of American made Erica which I tested was not as bright as the pre-war type.

Diamine Catechines

Among the dyes made this year, not elucidated in Schultz' tables, we find Diamine Catechine B, a dye formerly of very extensive application. Its excellent solubility and fastness to hot pressing make it especially useful in pad dyeing where it is often combined with Chloramine Yellow and Black HW both of which share these desirable properties. The Catechines G and 3G are also available for the first time since the war. They possess together with the B brand the property of being made very fast to light and washing by treatment with chrome and bluestone.

This completes the yearly review of the cotton dyes of 1922.

Now that the dye importation question has been settled for a time at least, we may look forward to a rapid advance all along the line in dye making. By the end of another year we will probably be able to report a long list of new and desirable cotton colors.

The Dye Industry: 1922 and 1923

General Development Noted—Future Depends on Interpretation of Tariff Act of 1922

(The following opinion on the dye situation was supplied to TEXTILE WORLD *by E. I. du Pont de Nemours & Co.)*

THE last year has witnessed a general development in the American dyestuff manufacturing industry which brings it to the stage where it is possible to say that practically every requirement in the dye-consuming industry can be met. In addition, costs have steadily decreased, thereby permitting proportional reductions in selling prices.

An important feature of the year has been the commercial production of a number of the most complex fast colors, the manufacture of which has required the investment of large sums of money in research and equipment. These fast dyes were imported, heretofore, from Europe.

Naturally the dye industry has aimed to produce a general, well-balanced line of colors, and so during the past year has announced approximately one hundred distinctly new dyes. Among the number is a wide range of extremely fast developed and ingrain colors. These are used for producing fast shades on cotton-shades which are unusually fast to washing and light.

Another equally important development in the industry has been the enlarged production of vat colors. This class of dyes was the last word in fastness which the Germans had been able to produce before the war. The importation of them has been necessary, up to recently, in order to meet the requirements of certain classes of textile manufacture. Vat dyes represent the peak of American research and engineering ability. They are the fastest dyes known and are equal to or better than the similar foreign dyes.

These developments give the textile manufacturer the opportunity to make a 100 per cent. American product by the use of American dyestuffs. The industry also protects the native textile industry from imported, extremely fast dyed material by supplying the latter with those dyestuffs, the exportation of which from Germany might be stopped so as to give their textile industries greater advantage in world trade.

Concentrated Sulphur Dyes

Another interesting product of the past year's development was the wide range of concentrated sulphur dyes announced. These colors find a large use in the production of cheap colored fabrics. They are noted for perfect solubility, purity of shade and cheapness.

In addition to the dyes already mentioned, the industry has developed many of the most brilliant basic dyes known. It is this type of color which produces the pure, bright shades on silk, wool and cotton.

It may be said that the development of the dyestuff manufacturing industry in the last year has constituted a great step forward and that the present range allows the textile dyer to obtain practically any effect on his cloth.

Outlook for 1923

The year 1923 promises a continuance of this healthy development. The efficiency of production should improve, with the resulting reductions in costs and selling prices. With this increased efficiency, if the past is any criterion, the qualities of the dyes should likewise improve. It is a noteworthy fact that in the case of a great number of the dyes produced in America, the quality of them is better than the imported foreign colors prewar.

Effect of Tariff

Under the Tariff Act of 1922, the industry will be forced to meet keen competition from abroad. If this does not prove to be impossible to meet, it should have an excellent effect on domestic manufacturers. As the Act reads, dyestuffs which accomplish results substantially equal to those accomplished by the imported colors when used in substantially the same manner are termed similar to and competitive, in which case the imported dye is dutiable at 60 per cent. ad valorem on the selling price of the competing domestic dye plus 7 cents per pound. But when imported dyes are non-competitive, then the duty is arrived at by applying the same ad valorem and specific duties, but on the cost of the dye to the importer. This last is determined by making fixed deductions from the American selling prices of the imported color.

So it can be readily seen, the hope of American dyestuffs industry is to make their competing line as broad as possible, for with foreign labor, particularly German, working for a twentieth or less of the American wage, any approximation of free-trade importations would absolutely kill the industry.

Interpretation of "Competitive"

At the present time, both manufacturer and importer are concerned with how the Customs Division is to interpret the term "competitive" as related to dyes. Both sides have presented their claims, but the Government is not yet certain as to how it will proceed. It is understood that their interpretation will consider a domestic dye as a competing color if the foreign similar type in any way replaces the American and not that the domestic color must accomplish every result of the foreign prototype before it can be termed competitive.

So it can be readily appreciated that the development of 1923 in domestic dyestuffs will depend to a great extent on how the Government interprets the laws.

Up to Treasury Department

The Tariff Act of 1922, has the title "An Act to provide revenue, to regulate commerce with foreign countries, to *encourage the industries of the United States,* and for other purposes." It is therefore up to the Treasury Department to follow out the intent of Congress and "encourage the industries of the United States," particularly the American dyestuffs industry.

The Transportation Factor

(Continued from Page 214)

ished goods markets did much to develop that centre in the manufacture of shoes and today it is a formidable competitor of New England.

No More Important Problem

Transportation has been for the past few years, and will continue for the next several years to be a national problem affecting all industry and the population of the country generally. Thinking men are more and more realizing that transportation is the life-blood of commerce. The present critical condition of the entire transportation machine has so impressed the officials of the National Government that President Harding in his last message to Congress declared, "I know of no problem exceeding in importance this one of transportation."

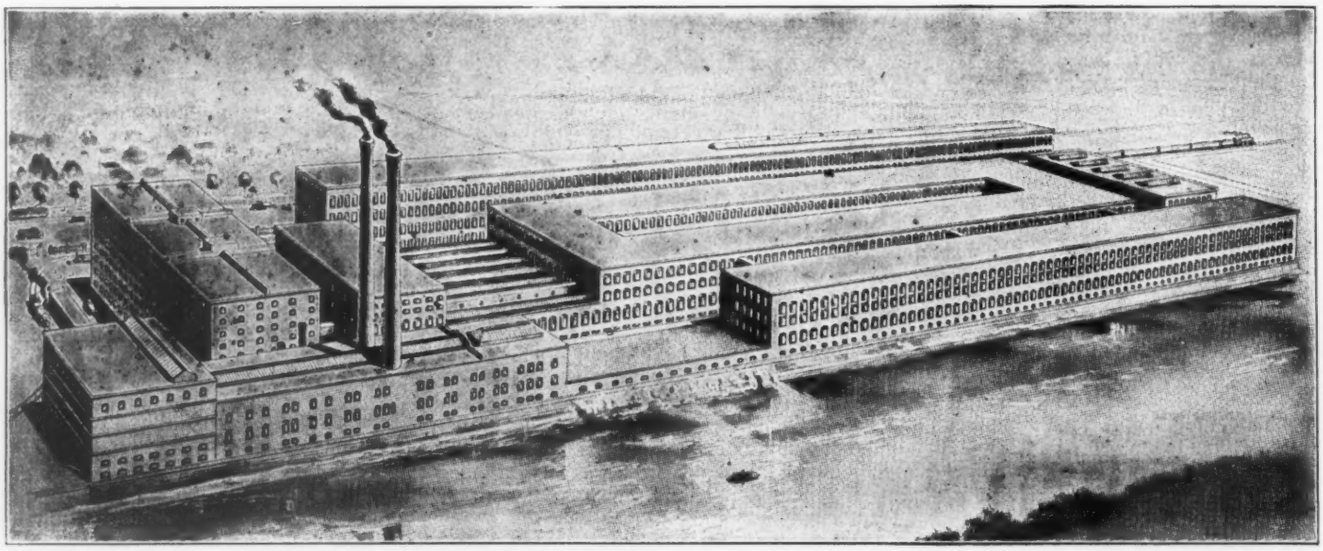
Causes of Tie-Ups

The continuous breaking down of motive power, the shortage of freight cars, the loss of interest or morale which once prevailed among railroad workers, and inability of managements to improve facilities are some of the causes which have jointly resulted in the failure to move the tonnage offering, have caused a strangulation of business in some sections, have stifled progress and have seriously affected price levels.

No one or group of men can be held responsible for this state of affairs. We sometimes blame the other fellow for positions we find ourselves in, and over which we have no control, but how often do we fail to recognize the whirlpool of despair until caught in it through lack of our own foresight or acknowledgment of advice.

Transportation is important in the location of any textile plant and will increase in importance during the next few years. It is the medium by which profit is returned to the manufacturer, and only those who recognize its true relationship to national and world commerce may hope for a full measure of industrial success.

Practically all the goods turned out of



Pacific Mills, Bleachery and Print Works Department, Lawrence, Mass.

The Pacific Mills cover 182 acres of floor space and have 660,112 cotton and worsted spindles and 15,933 looms in operation. 330 miles of cloth are woven in this giant plant each day. This annually requires the normal products of 195,000 acres of cotton and the wool from 2,366,400 sheep.

A few of the trade names of the products of the Pacific Mills are:

"Duretta Cloth," "Pamico Cloth," "Hampton Suiting," "Palico Cloth," "Pyramid Cottons," "Merit Muslin," "Product," "Pacific Mills," "Serpentine Crepe," "Montauk," "Bellwood Cambric," "Pacific Cambric," "Bellwood Lingerie Cloth," "Prairie Belle," "Toilers," "Panama," "Pacific Twilled Jean."

BUTTERWORTH

POWER AND ENGINEERING SECTION

The Amoskeag Power Development

Great Water Project Completed—Concrete Dam 800 Feet Long, with Tunnel for Pedestrians to Cross the River and Power Transmission Cables, Built on Solid Ledge Foundation—New Power House for Complete Installation of Three 7,500 Horsepower Units

By *Arthur T. Safford**

AT this time when so much is being written about the advantages which the South appears to possess for textile manufacturing, it is a pleasure to record the building of a great water power development in New England at Amoskeag Falls, N. H., which promises to do its part towards keeping one industry in New England.

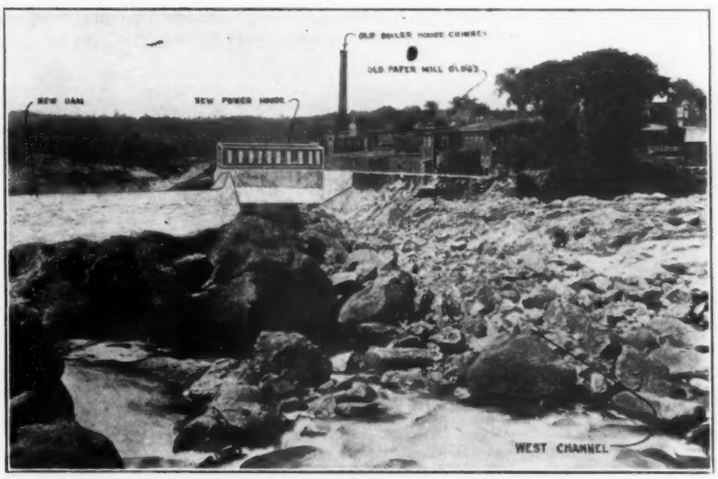
Since the beginning of the nineteenth century, when cotton manufacturing was established, the Merrimack River has held its place as the driver of more cotton spindles than any other of our rivers; and whatever the form of transmission has been or will be, the power of falling water from the dams at Manchester, N. H., and Lowell and Lawrence, Mass., has furnished the energy to do the work.

Up to about the Civil War period, water power was the only source of power; and when it failed the mill shut down in whole or in part. The next great development of power was of steam; and because of its permanency and the low price of coal, water power was out of favor. Since the World War, because of increasing and high costs of coal and the great advantages of electrical transmission which water power shares with steam power, water power is once more attractive. Building and equipment costs are high, fully as high and perhaps higher than for an equal amount of steam power; but the raw material, falling water, is cheap and continuous.

* Engineer of the Proprietors of the Locks and Canals, Lowell, Mass., and Consulting Hydraulic Engineer.

Third Development at Falls

The development at Amoskeag Falls completed in 1922 is the third at about the same location, using a part or the whole of the natural fall of the Merrimack River through about a half mile of rapids. Remains of a former wing dam and foundations of a mill, as old as 1810, could be seen previous to the building of the new power house.



Location of the Hydro Station Over the West Channel

There was a mill and mill village on the west channel when the village of Amoskeag was on the west side of the river, and the post road from Boston to Concord followed this bank of the river and did not cross to the later City of Manchester. The original mill was a grist and saw mill but there was a cotton spinning mill as early as 1810, said to have been started by Samuel Slater, which must have been running before the Boston Manufacturing Company mills at Waltham and about the time of the earliest mills at Lowell.

Between the time of building this mill and the beginning of Manchester as a manufacturing center, the Merrimack River began to be used for the passage of boats and lumber.

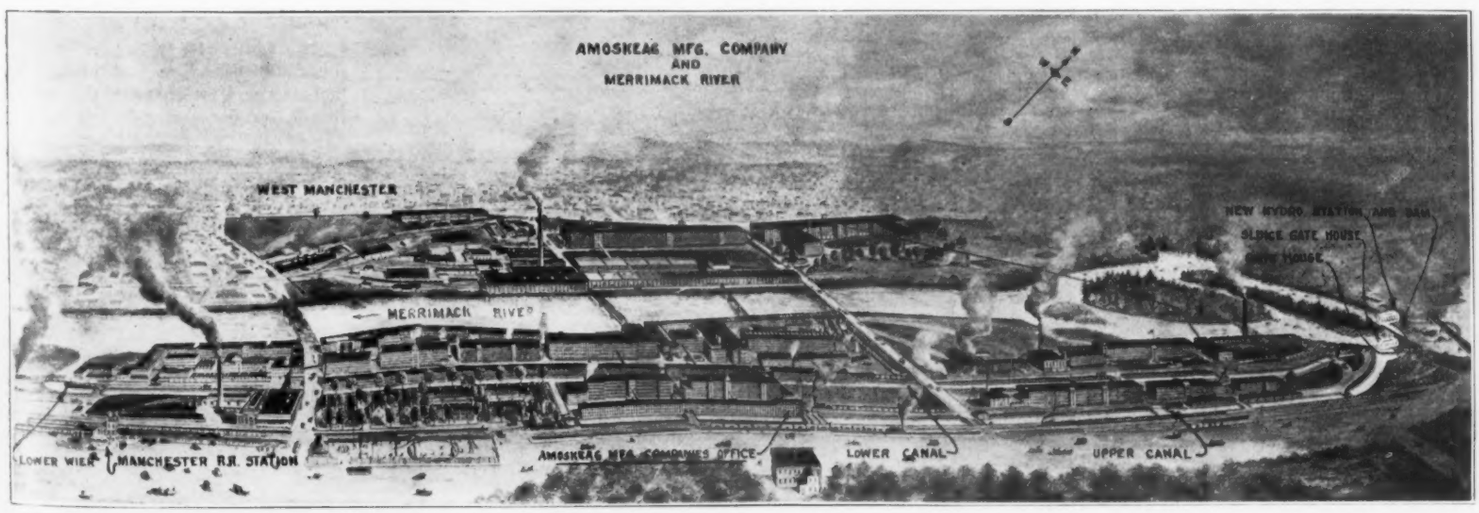
Transportation then and a little later was by water, and the first dam completely across the Merrimack River turned the water into a navigation canal, called the Blodgett Canal, on the east of Manchester side of the river.

This Blodgett Canal later became the lower level canal of the Amoskeag Mills water power system, the upper canal being a new canal dug along the contour of the hill at the level of the dam.

The dam across the river, built in 1837, was rebuilt and raised in 1871 and a good-sized gatehouse and sluiceways controlled the flow into the canal on the east side. The Amoskeag Mills were gradually built up between the two levels and the river, and for many years were run entirely by water.

The canals flowing directly through the yards, the iron racks or grating at which some one was always busy raking leaves or ice, the massive headgates shutting off each channel from the canal, the masonry or iron penstocks underground leading to the heavy slow speed wheels, the tailraces discharging into the lower canal or river, all formed a network of arteries which being for the most part out of sight could not be appreciated without an underground survey.

Repairs made, with the water shut off over Sundays and holidays, were tedious and difficult to make; and what could not be seen could not be



Airplane View of Amoskeag Manufacturing Company's Plant, Showing Location of New Hydro Station and Dam

criticised. While as machines the wheels were kept in good repair, the fine adjustments could not be made and friction losses due to the noisy gears, belts and pulleys and long lines of shafting much reduced the output of a wheel or group of wheels.

While the mill power, the measure of water power in New England, was rated at about 70 horsepower, it probably did not represent over 50 horsepower when at work. The Amoskeag had developed in something like 50 water wheels about 19,000 horsepower on both levels; but the power at the switchboard was probably not more than two-thirds of this figure. Two of the units in the new power house will develop about 15,000 horsepower.

The new hydro station, or third and recent redevelopment of the power at Amoskeag Falls, at first contemplated the installation of one or more surplus power units, to use waste water on the east side of the river, without changing the general situation as far as the dam, headgates and canals were concerned. But as the problem was studied and the greater efficiency from the water was appreciated, it was decided to make an entirely new development on the west side leaving the gatehouse and canals to feed wheels on the east side to run at times of large flows, but using the low and ordinary flows through the new station.

The best plan was found to be to locate the new hydro station over the west channel, which was but little wider than that required for the three units selected; build a new dam from the east end of the power house up river to the present gate house, flooding out the existing dam, and dredge out a tailrace of the necessary width down the west channel a distance of about one thousand feet.

Eventually the old dam now standing will be cut down and the river through a channel more than two hundred feet wide will bring the water directly to the hydro station at all heights of the river. From here the water enters through large steel racks and concrete scrolls to the three 7,500 horsepower I. P. Morris vertical wheels driving the same number of 5,000 kilowatt General Electric generators, the wheels discharging into the new tailrace 200 feet wide, and of varying depths.

By a careful saving of the available head, from the river above to the river at the end of the tailrace, practically the full outside fall of 50 feet will be available, and the performance of one unit running for the first time before the end of the year 1922 indicates an output about 15 per cent. in excess of its rating.

Dam Before the Last Section Was Constructed. Note the Double-Purpose Tunnel for Pedestrians and Power Cables

Lowering the Runner of 7,500 H.P. Turbine Into Place

The hydro station is a brick structure about 200 feet long, sixty feet wide, with a roofed-over protection for the head gates, which cut off the water from the turbines. The generator floor is 10 feet below the crest of the dam, 35 feet above ordinary tailwater, and the mezzanine or switchboard floor is about at the greatest freshet height. The station, 60 ton crane, turbines and settings, generators and switchboards are on a big scale but are not particularly novel. They do represent the best practice of the companies furnishing the equipment.

Double-Purpose Tunnel in Dam

The generous amount of room due to the power house occupying the entire west channel, and the transmission through three and one-half inch submarine cables which leave the power house by the river to the Coolidge Mill on the west side and through a tunnel in the dam to connect with existing lines in the canal on the east side are essentially novel, and their behavior through the different conditions of heat and cold, freshet and drought, will be worth watching.

The dam is about 800 feet long, of a heavy section, pierced by the tunnel referred to, which is about seven feet high and four feet wide, with six conduits or channels staggered to receive as many cables. Now for pedestrians the trip across the river is made through the tunnel which is lighted for the purpose.

The tunnel can be drained outward and flooded inward by special valves for the purpose. As the contraction joints in the dam are there for a purpose there are cracks and a slight but decreasing amount of leakage (less than the capacity of a six inch pipe) with six feet of water over the dam. The tunnel is relatively dry but cool and apparently will serve its double purpose of a way and wire tunnel.

In connection with the work of building the hydro station and dam across the west channel, the old gate house on the east side has been re-

Close-Up View of New Amoskeag Dam and Power House

built of brick, and below it and taking the place of an old sluice way have been installed five sluice gates, having a total discharging capacity of about 5,000 second feet, to control the flow when flashboards are being put on the dam.

Use of Channels Reversed

A birdseye view of Amoskeag Falls today will show the situation reversed as far as channels are concerned. Where formerly the east channel was set to work and a large part of the water at freshet times ran to waste through the west channel, now the west channel is harnessed for work and the waste water must find its way through the east and middle channels to flow down the river.

On the island below the west and middle channels are two oil tanks of 55,000 barrels each. The new hydro station and oil tanks have a business-like look and harmonize well with the 137 acres of floor space occupied by the great mills down the river. Electricity has become the bond to link together the great turbines, steam and water, which together will drive the 24,000 looms and other machinery of this mill.

Material and Equipment

Some figures of material and equipment purchased and used may be of interest:

I. **DAM**
Mass concrete .....16,000 cu. yds.
Rock excavation ..... 4,000 cu. yds.

II. **REMOVAL OF TOP OF PRESENT DAM**
Masonry removed .....1,000 cu. yds.

III. **POWER STATION FOUNDATION**
Mass and reinforced concrete .....23,000 cu. yds.
Steel reinforcement ..... 400 tons
Structural steel, racks, etc. 100 tons
Rock excavation ..... 8,000 cu. yds.

IV. **POWER STATION SUPERSTRUCTURE**
Volume of building .....670,000 cu. yds.
Structural steel ..... 160 tons

V. **HYDRAULIC EQUIPMENT COMPLETE INSTALLATION**
Three I. P. Morris turbines, each 7500 H.P. Maximum at 46 ft. head, using 1700 c.f.p.s.
Three 65,000 ft. lb. Woodward governors complete with central pumping system.
Nine 10 x 20 ft. wooden gates with steel stems.
Nine motor driven gate hoists, each 60,000 lbs. capacity.

VI. **ELECTRIC EQUIPMENT COMPLETE INSTALLATION**
Three 6250 KVA General Electric Co. A.C. generators 5,000 KW 0.8 P.F., 2300 volts, 3 phase, 60 cycle, 112.5 RPM.
Three 200 KW motor driven exciters.

VII. **MISCELLANEOUS EQUIPMENT**
One 60 ton Northern crane, with two 30 ton hoists, 51 ft. 10 in. spans.

VIII. **TAIL RACE**
Rock excavation ..... 7,000 cu. yds.
Excavation .....100,000 cu. yds.

IX. **SLUICE GATES**
Cutting out masonry, gates and hoists.

Re-Development of Small Water Power

Forestdale Manufacturing Co., Forestdale, R. I., Builds New Power House and Installs Modern Hydro-Electric Units on Site of Old Boiler House—Value of Small Water Powers from Economic Standpoint of Saving Fuel and for Partial or Overtime Operation

MANY textile plants were started at a time when steam power was inefficient and costly and when the demand for large and constant sources of power was not so important as at present. This naturally led the owners to locate where water power could be developed at small cost which would serve all their purposes for the time being. Most of the industries which proved successful soon required larger and more constant sources of power than could be obtained from their local water power, and in many cases the water power soon became a very small portion of the total energy required.

Very few of these small water powers were abandoned where the industry itself prospered, although in many cases they would be found to operate at a loss if all proper charges were made against them. With others the use of water for condensing and manufacturing purposes required the maintenance of dams, ponds, and other structures. This made it possible to consider a large portion or all of the fixed charges against such structures chargeable to other parts of the industry than water power, thus again making the water power a profitable source of power.

Value of Water Powers

Electrical transmission of power has made it possible to utilize many of these small water powers more fully, as their use is not now limited to the machinery to which they are mechanically connected, but they can be used wherever power is required. In some industries where there often is necessity for overtime, night and Sunday work in some departments, a small water power is valuable to carry such loads when it would otherwise have to be carried by a steam plant at inefficient part load and at considerable cost in attendance. Most small water powers require no more attendance than is necessary to start and stop the turbines.

Still more recently the question of fuel conservation and the shortage of fuel for steam power has enhanced the value of small water powers, both from the economic standpoint of saving fuel and as an insurance to an industry possessing one that it will have at least a portion of the power required, independent of the coal supply.

Such water powers may be the means of completing stock in process at a vital time, or of filling valuable orders, or keeping together at least a small part of an organization when other sources of power fail. The advantage of replacing old water power equipment by modern hydro-electric units appeals to progressive mill men as never before.

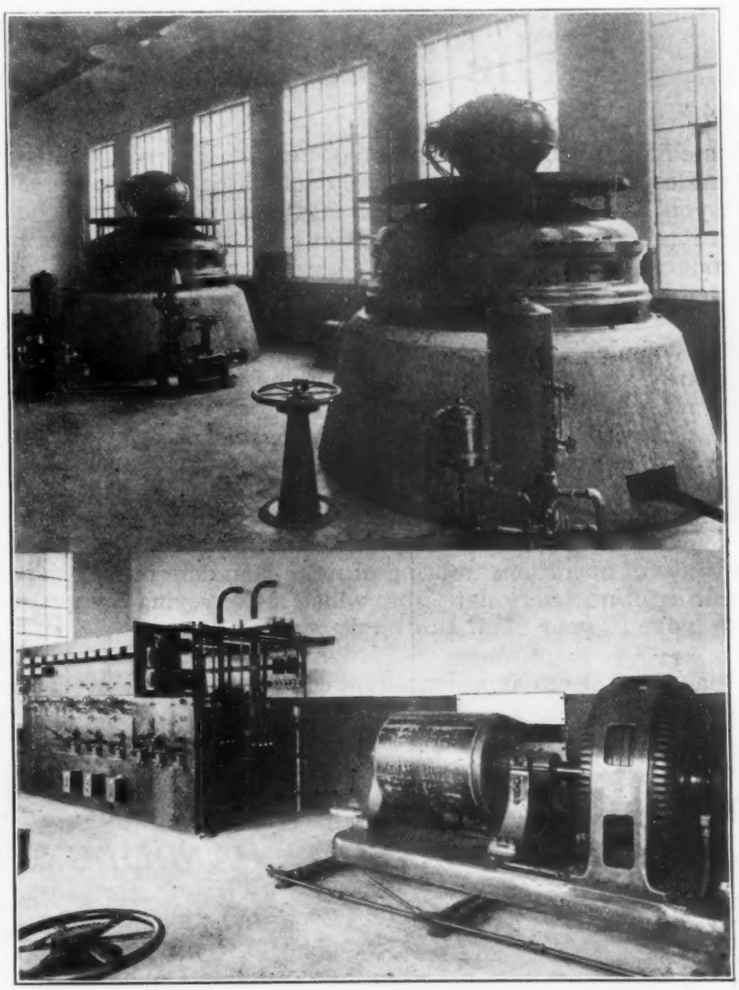
Old Boiler House Removed

One of many installations of this kind designed by Charles T. Main, engineer, Boston, Mass., is at the plant of the Forestdale Manufacturing Co., Forestdale, R. I., where previous to 1921 the mills were driven partly by mechanical drive and partly by electric power. During that year the company re-developed the water power by installing modern hydro-electric units in a new power house.

This work began with the removal of an old boiler house and chimney which were on the site of the new power plant. The work was carried on with practically no interference to the operation of the mill.

The new plant, which is at the left of the chimney, consists of an intake, two concrete pressure conduits and spirals, a brick power house and a brick chimney. As the work on the power house and chimney progressed, care was taken not to disturb the intake to the old wheels until the work was nearly completed, the old wheels being operated until the new plant was built.

The excavation for the draft tubes was carried into the ledge and to allow unobstructed flow from the new turbines the river bed was cleaned out for about 200 feet below the dam.



Interior Views of New Hydro-Electric Station at Forestdale Mfg. Co.

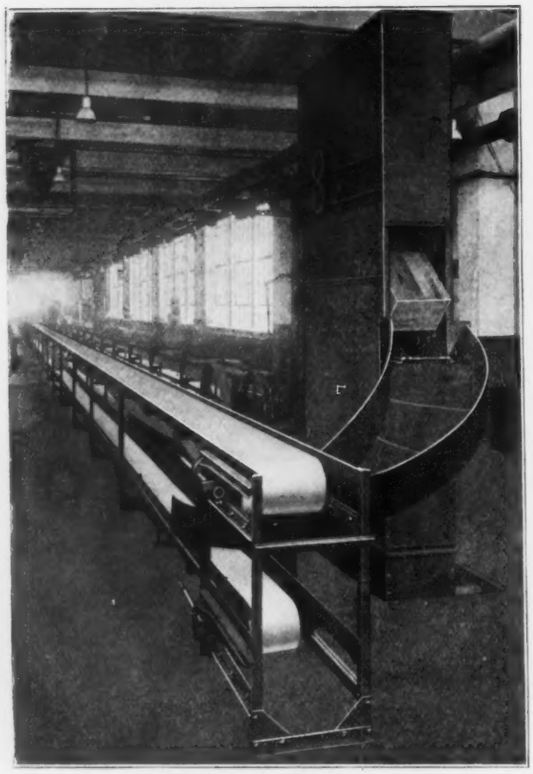
New Construction

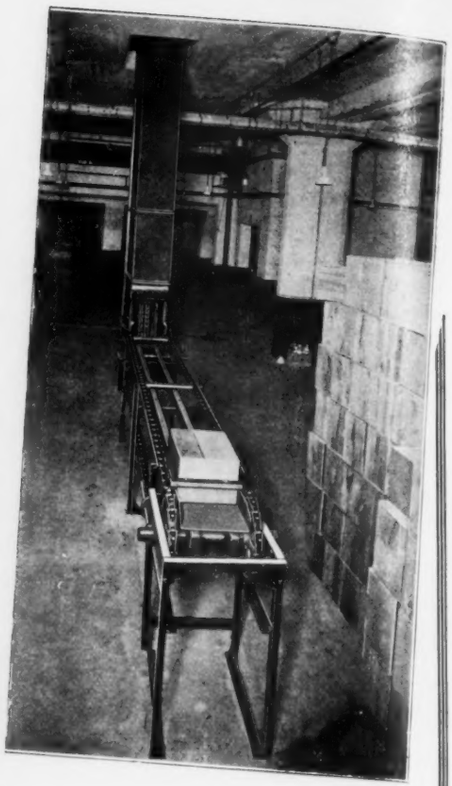
The sub-structure of the power house consists of a reinforced concrete floor, a basement in which are located the lighting transformers, the concrete spirals and arches through which the steel draft tubes pass to the tail-water.

Above this, the superstructure has brick walls, steel sash, and a reinforced concrete roof. It was only necessary to build two walls, as the south wall of the picker house served as the north wall of the power house, and the west wall of the boiler house served as the east wall of the new plant.

A pump room was built in the east end of the new power house with the floor at the same grade as the boiler house floor. This contained the steam fire pump and the boiler feed and receiver pumps.

The intake for this plant is of concrete with steel racks and timber gates. This work was held up until the last when the old wheels were





Survey Your Plant Through The Eyes of Your Competitors

SYSTEM immediately becomes the mooted question. True, productive machinery such as spindles, looms, etc., is practically standard. The equipment of this class that they have you have. But are you keeping your materials on the move so that all machines are producing constantly. That's the biggest factor of business today. And to keep products in the various stages of manufacture on the move you must use Conveying Systems.

Conveying Systems eliminate manual handling of materials, waste motion, keep operators supplied continuously with work, establish a working pace for employees, thereby controlling production, and carry finished product to stock room or shipping department. *Just what would a Conveying System mean to your business?* A greater production with present payroll which means increased sales and more profits.

Conveying Systems to function properly must be designed to meet your requirements. To determine your needs an analysis must be made of your methods of manufacture which involves study of operations, routing of materials, determining maximum production and the securing of necessary data from which a Conveying System which will keep materials on the move in your plant can be designed.

We will gladly have one of our representatives call so that this matter can be discussed to your entire satisfaction.

SAMUEL OLSON & CO.

Loose, Bulk and Packed MATERIAL HANDLING SYSTEMS

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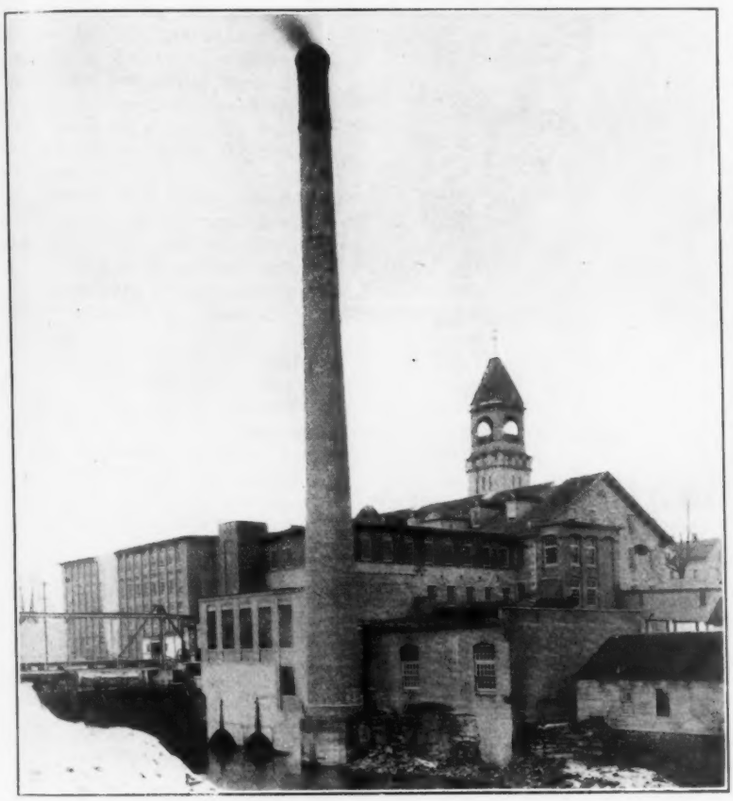
shut down. During the construction of the new intake, no cofferdam was necessary as all the work was done behind the river wall, and this was later blown out under water when the intake was complete.

The power house equipment is as follows: Two vertical turbines, 275 H.P. each, under 15.5 foot head when running at a speed of 200 R.P.M. Two 250 KVA. vertical generators, 3 phase, 60 cycles, 600 volts, with direct connected exciters. One 400 KVA. horizontal, belt driven generator, 514 R.P.M., 3 phase, 60 cycles, 600 volts; also a motor generator set, 10 KW., 125 volts, to excite the belt driven generator, and a ten panel switchboard from which is controlled the electrical equipment of the power house and the mill.



Forestdale Mfg. Co.; New Hydro-Electric Station in Foreground

The belt driven generator is driven from the engine by a 40 inch belt. This part of the work was also held up until the old wheels were removed. The two new turbines are controlled automatically from the level of the pond, operated by means of floats in stilling wells in the power house.

During the construction of the power house, intake, chimney, etc., new motors were installed in various parts of the mill to make use of the current generated.

All of the mill water supply was drawn from the old canal which was abandoned, and this necessitated a new source of supply. A screen chamber was built in the power house intake and an 18 inch pipe runs under the new conduit to a suction well, from which the water for the fire pump, dye house, the condenser and boiler feed is taken.

Motorization of an Old Mill

Data Collected at the Lancaster Mills, Manufacturers of Ginghams and Fancy Cotton Goods

By *W. M. Pierce**

THE Lancaster Mills were among the first in this country to electrify their plant. This was practically forced upon them by conditions beyond their control. The change was accomplished under the direction of Stephen Greene, of Lockwood, Greene & Co., the engineers in the later remotorization of the plant which is described. Sidney B. Paine, manager of the Mill Power Department of the General Electric Co., was associated with Mr. Greene in the early work at the plant.

This motorization originally was in large groups and proved so satisfactory that it was subsequently decided to take advantage of the advance in the design of electrical apparatus and to remotorize, using smaller groups and individual drive. Some of the advantages obtained are given below.

This plant was established in 1844 under the name of Lancaster Gingham Mills in a section of the town of Lancaster (now Clinton) located on the south branch of the Nashua River which furnished power for manufacturing and water for process work.

Early Power Arrangements

The water power available was sufficient to meet the needs of the plant for a number of years, but eventually it became necessary to install engines which were used in connection with the water wheels to supply the increasing demands for power. As was customary in those days, a large jack shaft equipped with bevel gears, driving shafting at right angles, transmitted power for a part of the mill from the wheels and engines. This method of driving was very troublesome and expensive, demanding a force of one hundred or more mechanics for maintenance. The total power furnished by wheels and engines was approximately 3150 H. P.

In the early nineties the Nashua River was taken over by the State of Massachusetts to furnish the domestic water supply for the Metropolitan District. Owing to this it was necessary for the management of the Lancaster Mills to reorganize their entire system of power generation and distribution. This was accomplished by centralizing the power units and adopting the system of electrical distribution that supplied power to motors arranged for group driving in sizes from 50 H. P. to 150 H. P.

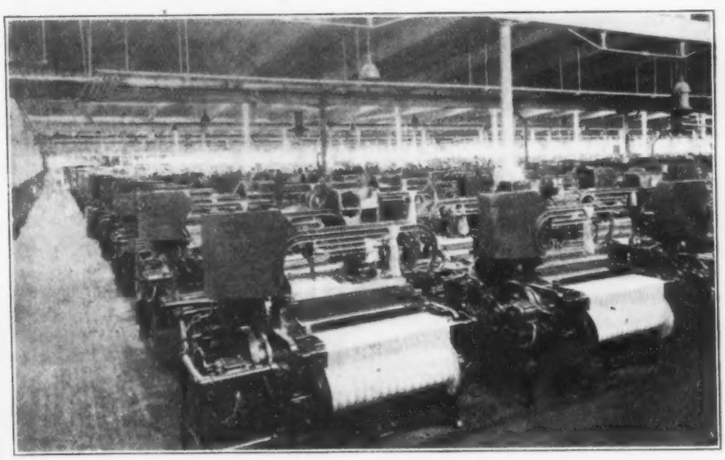


Fig. 1.—Part of a Group of Four-Box Automatic Looms Driven by ½ H.P., 220 Volt, 60 Cycle Loom Motors

Power Units

There were two power units installed in 1897 and 1898. One was a cross compound engine, size 28 by 56 by 60 inches, direct connected to a 3 phase, 40 cycle, 600 volts, 1250 KW generator. The other was a somewhat larger engine, size 32 by 64 by 60 inches, direct connected to a 3 phase, 40 cycle, 600 volts, 1650 KW generator.

The above units supplied the needs of the entire plant until 1909 when plant extension called for additional power. At this time it was decided to increase with hydro-electric service furnished by the Connecticut River Power Co., now the New England Power Co. On account of the 40 cycle equipment in use it was necessary to install frequency changers, two sets of 2500 H. P. capacity each being installed.

These sets have been operating at full capacity for a number of years, but with the idea of increasing production, the 40 cycle system of group driving is gradually being replaced by individually driven units of small capacity operated at 60 cycles.

Distribution of 60 Cycle Service

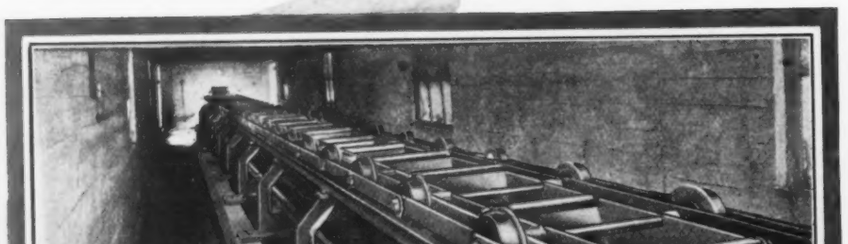
Power is furnished to the Lancaster Mills by the New England Power Co. over a 13,200 volt, 3 phase line that is carried down the old bed of the Nashua River at the rear of our power plant. A concrete platform was built over the river bed to carry the two outdoor type electrically operated oil switches that control this outside source of power. One of these oil switches controls the power to a bank of 3-100 KVA transformers, located on the platform, which furnish the power for 24 hour lighting service.

From the other oil switch the 13,200 volt feeders run underground to the basement of the switch house that adjoins our own power plant, then to the bus chamber which is located underground and forms a part of the transformer foundations. This chamber contains the 13,200 volt bus and the delta connections are made here for the primary side of 3-500 KVA transformers. Varnished cambric insulated lead covered cables installed in iron conduit are used to carry the power from the bus chamber to the primary side of the transformers.

From the secondary or 600 volt side of the transformers, the feeders are carried in conduit overhead into the switch house to an overhead bus where the delta connections are made. From this point power is supplied to the 500 ampere, 600 volt, solenoid operated, oil circuit breakers, the control of which is located on a switchboard in the engine room. These breakers energize the individual feeders supplying the secondary group of transformers located on the outside of the mill buildings as near as possible to the center of distribution.

From the 200 volt side of the secondary transformers, the main feeders are run on cleats where permissible. The branch circuits which are properly fused are installed in rigid iron or metallic conduit. The C. R. 1036 safety switches mounted on pedes-

* Mechanical Superintendent, Lancaster Mills, Clinton, Mass.



A Necessary Adjunct To the Power Plant

Your Power Plant must produce steam at the lowest cost per pound. In order to do this it is necessary to employ equipment of the highest standard. Coal must be delivered to the boilers and the ashes removed quickly and cheaply and without breakdowns.

THE PERKINS PIVOTED BUCKET CARRIER meets the exacting requirements of Power Plant service with a minimum of operating and maintenance expense. Strong and durable, mechanically correct in design, it insures years of reliable and dependable service. It is exceedingly inexpensive in the long run.

Take up your power plant requirements with a Webster Engineer. His intensive training in this work qualifies him to give expert advice—gratis—on the best methods of handling coal and ashes in the power plant.

THE WEBSTER MFG. COMPANY

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tals are used for controlling the individual motors throughout the entire loom installation. These switches have given very satisfactory results. All outside wiring including power, lighting, telephone and signal wires are installed underground in vitrified and fibre conduits. The power cables have given very little trouble, 90 per cent. of the original installation being in use after nearly 25 years of continuous service.

Reasons for Motorizing

Machinery driven by individual direct connected motors has the following advantages: Production can be increased and quality of work improved due to more even speed. With the best of mechanical and group drives where belting is employed for transmitting power it is impossible to maintain as constant a speed as with direct connected motors, the speed of the prime mover being the same in both cases.

Cleanliness and safety, important factors in all manufacturing establishments today, can be promoted. Less strain will be put on the bearings. Machinery can be placed in any position so as to facilitate working conditions.

Economy of floor space can be made possible in many instances due to the fact that wiring may be installed where it would be impossible to transmit the same amount of power in the same space by mechanical means. Lighting, both natural and artificial, can be improved by the elimination of overhead belting, pulleys and shafting.

In the case of the individual motor driven loom there is but one chance for slippage, that being at the friction, and this can be watched and carefully adjusted by the loomfixer.

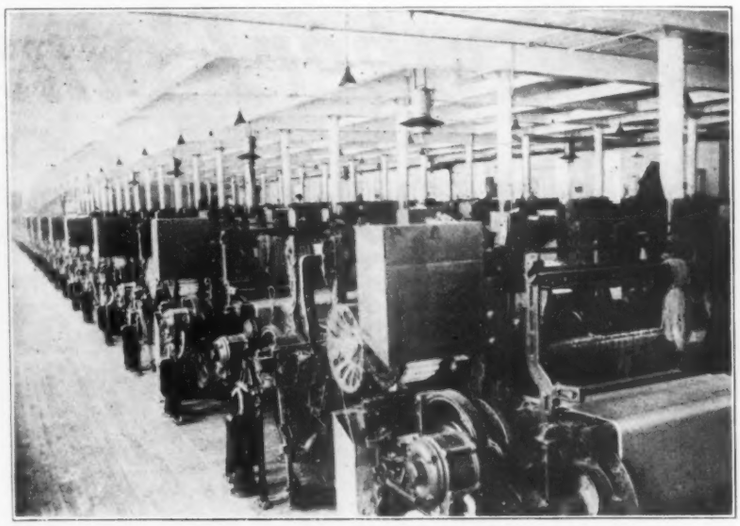


Fig. 2.—A Room Containing 298 Draper Looms After Installation of Individual Motors

In the case of mechanically driven looms, where belting is used, there are as many chances for slippage as there are series of belting between prime mover and loom.

Previous to the installation of electric drive the employes felt that motorization would throw a large number out of work. Contrary to tradition, the weavers at the Lancaster Mills, who have operated belt driven looms for years, prefer the motorized loom. These are the principal reasons, the writer believes, for motorizing textile machinery and many plant executives are now recognizing them.

During the year 1922 very careful records were kept covering the maintenance and performance of 2,000 one-half H. P., 220 volt, 3 phase, 60 cycle loom motors. These motors were under the direct charge of one electrician who looked after fuse renewals, oiling, etc. It seems incredible that a motor failure did not occur and no trouble was experienced with motor pinions working loose or giving any trouble whatever.

The cost of maintenance, including direct labor only, fuses and oil, amounted to $.7262 per loom for the year. This figure can be somewhat reduced as many of the looms were new, this fact increasing cost of fuse renewals slightly. The labor cost can also be reduced as one electrician should maintain at least 3,000 loom motors.

In a unit in this mill where 1,000 gingham looms are driven mechanically, using motors ranging in size from 75 to 150 H. P. a comparative figure has been obtained covering maintenance, this including belting, shafting, oiling, cleaning, direct labor, etc.; the cost being $1.01 per loom for the year.

Increase in Production

While authentic information is not available, there seems to be sufficient data present to state that with motor drive the production was increased at least one and one-half per cent.

In conclusion, it can be stated for the benefit of those contemplating the electrification of a textile mill that too much care cannot be taken when making such an installation. Each plant has individual conditions to be worked out, and the work should be placed in the hands of those who are competent. Great care should also be taken when installing the wiring, as many serious interruptions can be traced to faulty and careless workmanship.

Expediting Textile Shipments

Motor Truck Saves Transportation Breakdown by Bringing Relief to Railroads—Methods to Pursue in Making Permanent and Efficient Investments in Trucks—Demountable Bodies and Semi-Trailers Cut Idle Time and Make Effective Use of Loading and Unloading Platforms

By *Windsor T. White* *

THE hand of progress cannot be arrested. The truth of this is seen graphically in the enlargement of the niche reserved for motor truck transportation in our transportation structure. Today over 1,430,000,000 tons of freight find their way over the highways in this country every year.

This tremendous support to the transportation demands of the nation's business has only been possible because of the economic necessity being served; that is, relief to the railroads. As R. S. Parsons, vice-president of the Erie Railroad, expressed it, "The use of the expensive terminals of the railroads for local distribution through suburban areas results in an economic loss and requires the development of much larger terminals than would otherwise be necessary if such local distribution were eliminated."

Many textile shippers have already discovered this new transportation pulsation in the shipment of their less-than-carload merchandise. They have found that motor truck distribution through areas within a radius of from 30 to 50 miles is more satisfactory and economical than similar distribiution through the medium of railroad terminals.

One large company in particular has found on investigation that with trucks they are assured of delivery at practically a given hour at their various mills of required merchandise, which enables them to avoid lost production on account of delayed delivery. Trucks also make it possible for the company to insure quicker turnover of their investment.

One of the Four Walker Electric Trucks Operated by Bigelow-Hartford Carpet Co.

The necessity for extenstive success in this field of co-operation with the railroads is attested to by the recent statement of a prominent railroad official in which he said that to the extent to which motor vehicles take over short-haul freight traffic the railroads will probably be immediately benefited financially, because short-haul business is becoming increasingly unremunerative on account of the high proportion of terminal costs which it must sustain.

Demountable Bodies

The question at once arises as to what are the proper methods to pursue to make permanent and efficient investments in motor transportation in the textile industry. The extensive use of demountable bodies will be found of special help in cutting distribution costs. Fifteen demountable bodies and ten trucks have enable one large company to handle a 300 per cent. increase in business without the addition of more trucks. Incidentally, the elimination of the

* Chairman, National Motor Truck Committee, National Automobile Chamber of Commerce.

Boston Banker Points Out Advantages of South For Textile Industries

ALSTON H. GARSIDE, industrial service manager of the Merchants National Bank of Boston, in a recent issue of the New York *Journal of Commerce*, submits some data regarding textile mill conditions in New England and the South. In his article Mr. Garside brought out—

That for the first ten months in 1922 southern spindles ran an average of *60 per cent more* than northern spindles.

Southern spindles operated an average of 2,615 working hours, while northern spindles ran only 1,617 hours.

Southern mills averaged, on a normal working day, 10.2 hours, and ran on an average of *110 per cent normal*. Northern mills, with a normal day of nine hours, ran at only *77 per cent of normal*.

Southern mills not only ran their normal hours, but supplemented it with considerable night work; northern mills managed to run only three-fourths of their short day schedule.

In the first ten months of 1922 southern mills operated about 42,000,000,000 spindle hours; northern mills ran only 34,000,000,000 spindle hours, although southern mills have only about 16,000,000 spindles against 21,000,000 for northern mills. The south, with *24 per cent less spindles, ran 24 per cent more spindle hours.*

In November, 1921, southern spindles ran an average of 252 spindle hours, against 177 for northern mills, and in December 289 spindle hours against 188 for northern mills.

Alabama offers more than any other state for textile mills—raw cotton, almost at the mill door; abundant hydro-electric and steam power; free factory sites in many communities; efficient native labor; cheaper transportation by water and rail routes. Full information furnished to all interested on application by—

ALABAMA POWER CO.

BIRMINGHAM ..... ALABAMA

need for increasing the size of the loading and unloading platforms was also made possible.

Under the new arrangements the work capacity of the trucks has been doubled, as the loading and unloading time has been decreased from one hour to from five to ten minutes; and the trucks now make two to four complete daily trips with demountable bodies as against but one or two with fixed bodies.

Another excellent method of cutting costs came to my attention recently. This particular mill that has worked it out discovered that profits were being lost to its competitors because the trucks had to be held on the average for over two hours in loading. Immediately, the company set about to experiment with semi-trailers. Today it is using thirty-seven semi-trailers with twenty tractors, and as a result the loading time has been cut down from two hours to eight minutes.

Truck Standardization

Truck standardization is worthy of special attention. It will enable you to have all of your mechanical units, spare parts and supplies interchangeable. This permits buying on a quantity basis. It also makes for a better trained personnel, permitting mechanics to go from one repair job to another with rapidity and drivers to change trucks in special emergencies. I am told that one large fleet owner has reduced the number of idle days when his trucks are up for repairs from 39 days to 10 days for each truck on a yearly basis merely by the adoption of this unit system of replacement.

Sporadic and costly repairs on your trucks can be avoided if your drivers will report daily the condition of their trucks to your truck maintenance supervisor. But I believe that you should go still further and recommend that every truck in your fleet undergo a very scrutinizing inspection periodically. In this manner you will be able to discover initial weaknesses.

Records of Operation

Opportunities for discovering leaks in your service can only be telescoped by having at hand each month records of your operation and maintenance expenses and the other items that I have touched upon. When Edward N. Hurley was chairman of the Federal Trade Commission he preached with large emphasis this very truth, declaring in essence that the business interests of the country owed it to themselves to get a clearer vision of the advantages to be had from an accurate record of what it costs to manufacture and sell their products.

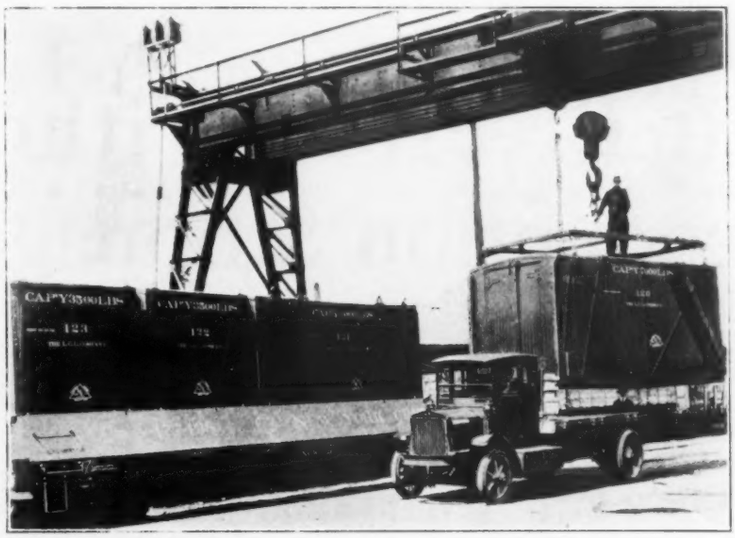
Experienced motor truck operators have found it difficult to standardize operating costs owing to the existence of so many varying factors which influence costs. For example, the weight of the loads, the condition of the roads, the number of grades, the skill of the drivers and the care used in maintaining the mechanical condition of the trucks, all have an influence on the ultimate cost of operation.

Inseparably bound up with truck cost matters is the question of the relation of the vehicle to the road. Many conflicting statements have been put forth of late with reference to this important phase. In my judgment the opinion advanced by T. H. MacDonald, chief of the U. S. Bureau of Public Roads, stands out as the most authoritative.

Mr. MacDonald states that "it is not so much a matter of the vehicles that are going over our highways as it is the character of material which lies under our highways that is causing us concern. As a matter of fact, when you see cracks in concrete roads they very frequently mean that the concrete road has lifted free from the sub-grade which lies under it and is supposed to support it, due to the warping action of the sun.

"Strange as it may seem, the heavier commodities you see hauled around the streets on motor trucks, such as coal, sand gravel and materials of that character, are not the commodities we find are hauled over the public highways. The commodities that go to the public highways on the long-distance haul are the higher-priced, smaller bulk commodities in which time is an element."

It is quite apparent that truck transportation has now come into its own. It is bound to play an even more important part in the general exchange of textile products both in the raw and finished state with the general expansion of business. The crest of this new business movement is not far away, for the labor controversies on the railroads, in the cotton mill and the coal fields have been settled in some instances, and are on the way to settlement in others, putting over a million men back to work.



The New York Central Railroad Is in the Vanguard of the Movement for Giving Large Shippers Quick Deliveries by the Use of Special Containers That Can be Unloaded on to Trucks

Fidelity Machine Company, Phila.

Modern Plant Gives Greatly Enlarged Facilities for Manufacture of Knitting Equipment

THE beginning of the new year saw the completion of the new plant of the Fidelity Machine Company, manufacturers or rib-knitting machinery at 3936-40 Frankford Avenue, Philadelphia. By February 1, the company had entirely removed to its new quarters which give greatly increased facilities and equipment. The Fidelity Machine Company had been established for the last ten years at 4015 Paul Street, Frankford, where they were engaged in the manufacture of knitting cylinders and dials. Recently, however, they developed a new type of ribber, which met with great success so that it was necessary for them to secure the increased production offered by larger quarters.

The new plant consists of a two-story building fronting on Frankford Ave. for a distance of 97 feet, with a depth of 40 feet, and an adjoining manufacturing building, one story with sawtooth roof, 97 by 160 feet. The buildings are of wood and brick, slow-burning construction, with concrete foundations and walls up to the street level. It is a daylight plant throughout, with Lupton steel sash and skylights. The floors are built up of 4-inch planks with 1-inch intermediate, and 7/8-inch hard maple top flooring, and give rigidity, strength and fire resistance. The building is entirely equipped throughout with sprinklers. Electric power will be used and will be furnished by the local power company.

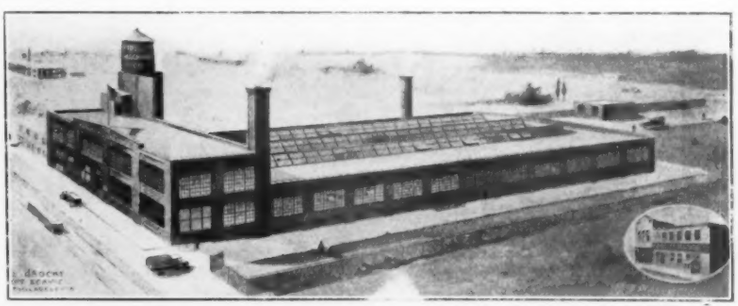
The two-story building will be used for the offices, drafting room and show rooms, while the second floor will be devoted to the manufacture of their stop motion. The grinding department will be located in the basement, as will also be the hardening furnaces. The packing and boxing of the completed machines will also be done in the basement while the remaining space will be used for storing materials. This basement is 160 by 60 feet, with 9-foot clearance, and cement floor. Showers are also located here, every facility being provided for the employes.

The main manufacturing building has been laid out so as to secure a clear floor for manufacturing purposes, the raw material coming in at one end, with the finished machines going out at the other.

The testing department, where each machine is carefully tested out before shipment, is located at the rear of this floor. An elevator is also installed in this part of the building for handling the raw materials and the machines to be packed for shipping, as the shipping platform is placed at this end of the building alongside of the elevator.

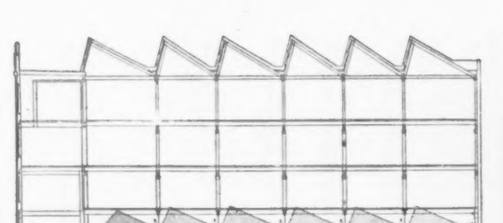
This new plant gives the company about 37,000 feet of floor space. New equipment of the latest and most up-to-date type has been installed, thereby increasing the production to a capacity of 100 finished machines per month at the outset. It is expected that this production will later be increased to 150 machines a month to meet the demands from the trade. Provision has also been made for future expansion by the purchase of a lot adjoining the rear of the new plant, consisting of 257 feet on Jasper Street by 90 feet on Pike Street.

In addition to the manufacture of their new ribber, and other knitting machines, they continue to make knitting cylinders and dials which forms a large part of their business. The officers of the company are W. A. Coventry, president; John J. Higginbotham, vice-president and general manager, and M. M. Eicks, secretary and treasurer.



New Plant of Fidelity Machine Co., Philadelphia

Plant Erection Without Production Stoppage



Manufacturers are frequently met who see the necessity of plant enlargement, but who dread any interference with production. This is a far-seeing view to entertain, and deserves consideration.

The Ballinger Company have given years of careful thought to this vital matter; as a result the difficulties have been overcome by ingenious methods; manufacturing in numerous cases has been carried on uninterruptedly, while construction was pushed energetically.

Above are two views of Building No. 5 of the Hardwick and Magee Company's Carpet Mills, at 7th Street and Lehigh Avenue, Philadelphia. The first shows a cross section of the original saw-tooth building with the added portion occupying the same ground area. A photograph of the building in its completed form is on the right. During the construction period interruption to manufacturing operations was reduced to an absolute minimum.

Correspondence is solicited. The Ballinger Company are also prepared to send competent representatives, who will give expert advice.

THE BALLINGER COMPANY

ARCHITECTS ENGINEERS APPRAISERS

PHILADELPHIA
S. E. Cor. 12th and Chestnut Sts.

NEW YORK
1328 Broadway

REPORT OF MILL CONSTRUCTION FOR 1922

New Mills, Enlargements and Improvements

Building Activities Gathered Momentum as the Year Advanced, Reflecting Improvement in Business Conditions—Reconstruction Work a Feature—Numerous Steam and Water Power Plants Reorganized—Textile Mill Village Activities Are Larger—Encouraging Outlook for 1923

THE expected revival of textile mill building materialized early in 1922, with the turning into actual awards of many new projects that had been planned in 1922 and earlier, but were held up on account of the high cost of building and the unsatisfactory manufacturing and marketing conditions. Building costs reached their lowest level before the middle of the year, and the later upward trend did not check construction activities; in fact, they have gathered momentum with the demand for textile products of all kinds. Many of the new mills constructed are of unusual importance, gauged by their size and productive capacity. They are located in twenty-nine different states, showing the tendency of the industry to develop in practically every section of the country.

Some of the most important construction work undertaken during the year was in the nature of plant reorganizations, new buildings replacing old ones and providing for the better arrangement of departments with a resulting improvement in production and reduction of material handling costs. There are hundreds of textile mills that have developed through periods of fifty and more years, whose buildings for the most part are narrow, poorly lighted structures, badly arranged for their present work. The replacement of these obsolete buildings by well designed modern structures is necessary to meet competition and will form a large part of the industry's building program for many years.

New manufacturing units added during the year totalled 238 according to records kept by TEXTILE WORLD. This number does not fairly represent the construction activity as compared with the previous year, however, as many of the new mills built in 1921 were planned and awards made in 1920. The year 1922 saw little work carried over from 1921, but on the other hand passed on to 1923 so many new projects that some authorities are willing to venture the prophecy that 1923 will be very nearly a record year.

The Cotton Industry

The cotton industry showed a larger number of new mills than in any year in the last decade except 1919 and 1920, the increase being especially notable in North Carolina and South Carolina. In these two states alone nearly half of all the new cotton mills reported are located and other Southern states make a good showing. Problems of labor and working hours that confronted New England resulted in few new cotton mill projects, although two of the developments in that section, the new cotton yarn mill of the Farr Alpaca Co., at Holyoke, Mass., and the new unit of J. & P. Coats, Inc., at Pawtucket, R. I., are large even for new cotton mills. With these exceptions the new cotton mills in the North are mostly small specialty mills. One of the most interesting of the cotton mill developments in the South is that of the Dixie Spinning Mills at Chattanooga, Tenn., where the 20,000 spindle unit now under construction is the first of a group of mills that will eventually be built to operate 160,000 spindles. A modern village is being constructed as a part of this development.

New Woolen Mills

Expenditures for new buildings in the woolen and worsted industries have been on a large scale. The number of new projects is 34, located chiefly in New England, New York and Pennsylvania. One of the most important of the new plants is the Shawsheen Mill No. 2, at Shawsheen Village, Andover, Mass., a subsidiary of the American Woolen Co. This plant will be equipped with 48 combs, which is the largest extension to combing plants in the United States since the American Woolen Co. erected the Ayer Mills at Lawrence, Mass., several years ago. There will be preparatory and spinning machinery to balance this combing equipment; also a large storage building and a dye house.

Enlargements and improvements in the woolen and worsted industry were the most extensive in several years. Some of the most important were the extensions at the Bigelow-Hartford Carpet Co., Thompsonville, Conn.; Goodall Worsted Co. and Sanford Mills at Sanford, Me.; Mohawk Carpet Mills and Stephen Sanford & Sons at Amsterdam, N. Y.; Jamestown Worsted Mills of Jamestown, N. Y.; Alexander Smith & Sons Carpet Co., Yonkers, N. Y.; James Lees & Sons Co., Bridgeport, Pa., and the Ardross Worsted Co., Philadelphia, Pa.

Knitting Mills

The number of new knitting mills is placed at 94, and as usual, is larger than in any other branch. Pennsylvania contributes 26 mills to this total, New York 18, and New Jersey 10. Several of the plants are subsidiaries of established mills that are branching out in new locations in order to secure a more plentiful labor supply. Among the more notable new buildings are the plant of the McCallum Hosiery Company in Philadelphia, the new mill of the Real Silk Hosiery Company at Indianapolis, the new dyeing and finishing buildings of the Phoenix Hosiery company at Milwaukee, and the large addition to the Berkshire Knitting Company at Reading.

Silk Industry

Expansion in the silk industry was fair, considering the decided increases that have been made in recent years. Moreover, this industry was the last to feel the revival in demand for textiles. As a result the number of new silk mills for the year is somewhat less than normal.

Of the 29 miscellaneous new mills reported, 21 will do dyeing, bleaching, mercerizing or finishing of textiles in some form. Among the plants that are of special interest are

(*Continued on page 487*)

COMPARISON OF NEW MILL CONSTRUCTION OF LAST ELEVEN YEARS

	1922	1921	1920	1919	1918	1917	1916	1915	1914	1913	1912
Cotton	57	46	89	74	29	52	51	24	26	27	37
Wool	34	36	30	54	24	24	23	19	21	24	24
Knitting	94	103	59	84	120	97	113	111	110	142	122
Silk	24	31	71	61	49	86	60	25	51	54	46
Miscellaneous	29	26	15	16	27	38	33	40	37	30	36
	238	242	264	289	254	297	280	219	245	277	265

Shawsheen Mills; View Showing Completed Mill No. 1 at the Right; Partially Completed Mill No. 2 at the Left Center; Storehouse Under Construction at Extreme Left

Dixie Spinning Mills Development

Program Calls for the Building of a 160,000 Spindle Yarn Plant in Four Units and a Modern Village on a 1200 Acre Tract Northeast of Chattanooga—No. 1 Mill, Now Nearing Completion, to Specialize on the Manufacture of 40s Two-Ply Yarn

By *J. M. Shelton* *

ONE of the outstanding developments in the textile industry of the South this year is the new fine yarn mill for the Dixie Spinning Mills at Chattanooga, Tenn. Entirely controlled and promoted by southern interests—namely, J. T. Lupton, Cartter Lupton, J. F. Harrison, J. T. Harrison and T. H. McKinney—this new development contemplates an ultimate program of 160,000 spindles, divided into four units of two mills each; each mill to contain approximately 20,000 spindles.

Through his connection with the Dixie Mercerizing Company, J. T. Lupton, capitalist of Chattanooga, conceived the idea of the Dixie Spinning Mill development, whereby it is proposed to manufacture high grade fine yarns for use by the Dixie Mercerizing Company. To carry out this program, Robert & Company, Inc., architects and engineers of Atlanta, were engaged to handle the whole development of 160,000 spindles, and a description of the first unit is given herewith.

Each mill of the four units to be built has been designed to manufacture one special number in order to produce the highest grade of yarn possible. The No. 1 mill, under construction at this time, is designed for the exclusive manufacture of 40s, two-ply yarn.

1200 Acre Site

The site of this new development is a 1200-acre tract of land on the Tennessee River, northeast of Chattanooga, and approximately six miles from the center of the city. A belt line of the C. N. O. and T. P. division of the Southern Railway goes through the center of the property and gives excellent railroad facilities. The beautiful Hixon Pike also traverses the property and affords good access to the city for the operatives.

Quite an interesting problem presented itself in transforming this beautiful rolling tract into a complete textile manufacturing city, and various schemes were worked out before final plans were accepted on the village layouts, water and sewerage systems and future plant sites.

In carrying forward the work on the first units, every feature of the ultimate development was carefully studied, and all phases of the work, such as the water supply, fire protection, street locations and sewage disposal, were worked out so as to merge into the final program.

Mill No. 1 and its auxiliary buildings, such as warehouses, opener room, waste house, boiler room, machine shops and pump room, are located immediately on and parallel with the railroad, the village being located directly in front of the mill. Separating the mill and village is a park which extends the entire length of both Mill No. 1 and Mill No. 2, in the center of which is located the office.

Design of Buildings

In adopting a type of building for the first unit, careful study was given to monolithic concrete construction, as well as slow-burning mill construction, and as a result a composite building of steel and masonry was worked out. On account of the value of natural light in the manufacture of fine yarn, the fenestration of the building was an important factor, and accordingly a design was used which made possible 65 per cent of the wall area being used as actual glass area. Cast iron columns are used throughout, spaced 26 feet on centers transversely and 21 feet 4 inches on centers longitudinally.

All of the picking machinery is located on the second floor, and in order to insure extreme rigidity, steel beams and girders were used in lieu of timbers. All of the spinning is located on the ground floor, where a maple floor on tar concrete is used.

The exterior treatment of the building presents a very pleasing appearance in that it is quite a departure from the usual design of cotton mills. Massive buttresses culminating in a Gothic cap at the sill line of the second floor openings separate the immense glass areas and give a mass to the structure that is decidedly monumental. The simple, well proportioned band courses and heavy cement coping adds dignity to the design and enhances the striking first impression.

On the main facade the building is emphasized by two entrance towers of small projection, one located at each end; a central tower, accommodating the toilets, switchboard and humidifier flanks the building on the rear and relieves the large expanse of windows.

A system of concrete platforms forms a means of communication between the mill and warehouse; however, all the cotton is delivered to the picker room through an overhead conveyor.

The boiler plant and machine shop are located to the rear and in the center of the two mills, the location furnishing an economical distributing point for all steam and return lines.

Village Development

The site of the village is immediately in front of the first unit, as shown on the general layout. In laying out the streets, every possible advantage was taken of the existing topography, and as a result the winding streets give a very restful atmosphere to the whole village. Beautiful shade trees are abundantly located throughout the villlage, and ample park areas are being provided wherever the topography lends to their natural development. Curbs and gutters are being provided for on the main streets, which are hard surfaced with chert taken from the property.

All of the houses throughout the village are of a bungalow type, various designs being used to give interest to the whole layout. A large auditorium has been located convenient to the village, and educational facilities are being provided for in the nature of a high school, primary schools and kindergartens. A community center is being developed wherein will be located the post office, church and various stores.

All of the houses are provided with water, sewerage connections and electric lights. Street lights are located throughout the village and every condition has been worked out to make the village complete in every detail. The construction of the village is being handled under contract

Airplane View of Dixie Village, Showing Mill No. 1 Under Construction

* Robert & Co., Inc., Architects and Engineers, Atlanta, Ga.

by Batson & Cook Company, of West Point, Ga.

Textile Machinery

The first mill of the No. 1 unit will contain a most modern installation of textile machinery, all furnished by the H & B American Machine Company. Mill No. 1 is designed for the exclusive manufacture of 40s two-ply mercerized yarn of the highest grade. The installation of textile machinery contains a special equipment of picking equipment which is quite a departure from the usual practice and necessarily insures a higher grade of yarn. A special system of winding and doubling will be used in lieu of the usual practice of spooling. All of the yarn will be furnished on ball warps or beams for delivery by trucks to the Dixie Mercerizing Co.

Electrical Equipment Features

In planning the electrical layout for this mill it was also necessary to take cognizance of the development of future units. On account of the small demand for process steam, it was decided to purchase power from the Tennessee Electric Power Co. The fact that their transmission system centered at Chattanooga improved the prospect for satisfactory service, both as to interruptions and regulation. The power company's supply is from the Ocoee developments and from the Hales Bar plant.

It is possible that the ultimate development will call for four separate units of 40,000 spindles each, erected some distance apart. This necessitated a fairly high distributing voltage and separate substations for each unit stepping down to motor voltage. Eleven thousand volts was selected as the potential for distribution. In case a central steam plant is deemed advisable later, it will be possible to generate at this voltage and thus avoid step-up transformers.

A separate 11-kv. substation will be provided for each half of each unit. As noted above, the unit consists of duplicate 20,000 spindle mills connnected at the picker room end. The step-down transformers will be located about fifty feet outside the mill wall and about the center of the building.

From each substation two circuits of 440 volt, 3 conductor park cable will run underground to the switchboard room located in the second story of a tower on the side of the mill. All motors will be 440 volt in order to match the usual practice in this vicinity and to enable the mill to take advantage of the stock of spare motors and transformers carried by the power company and by local dealers.

The transformer station will be furnished by the power company and will be their standard outdoor structure. Transformers will be connected in delta and for the first mill constructed will have a total capacity of 1,500 kva. This will insure operation of the complete mill on open delta, even if one of the transformers should go out of service.

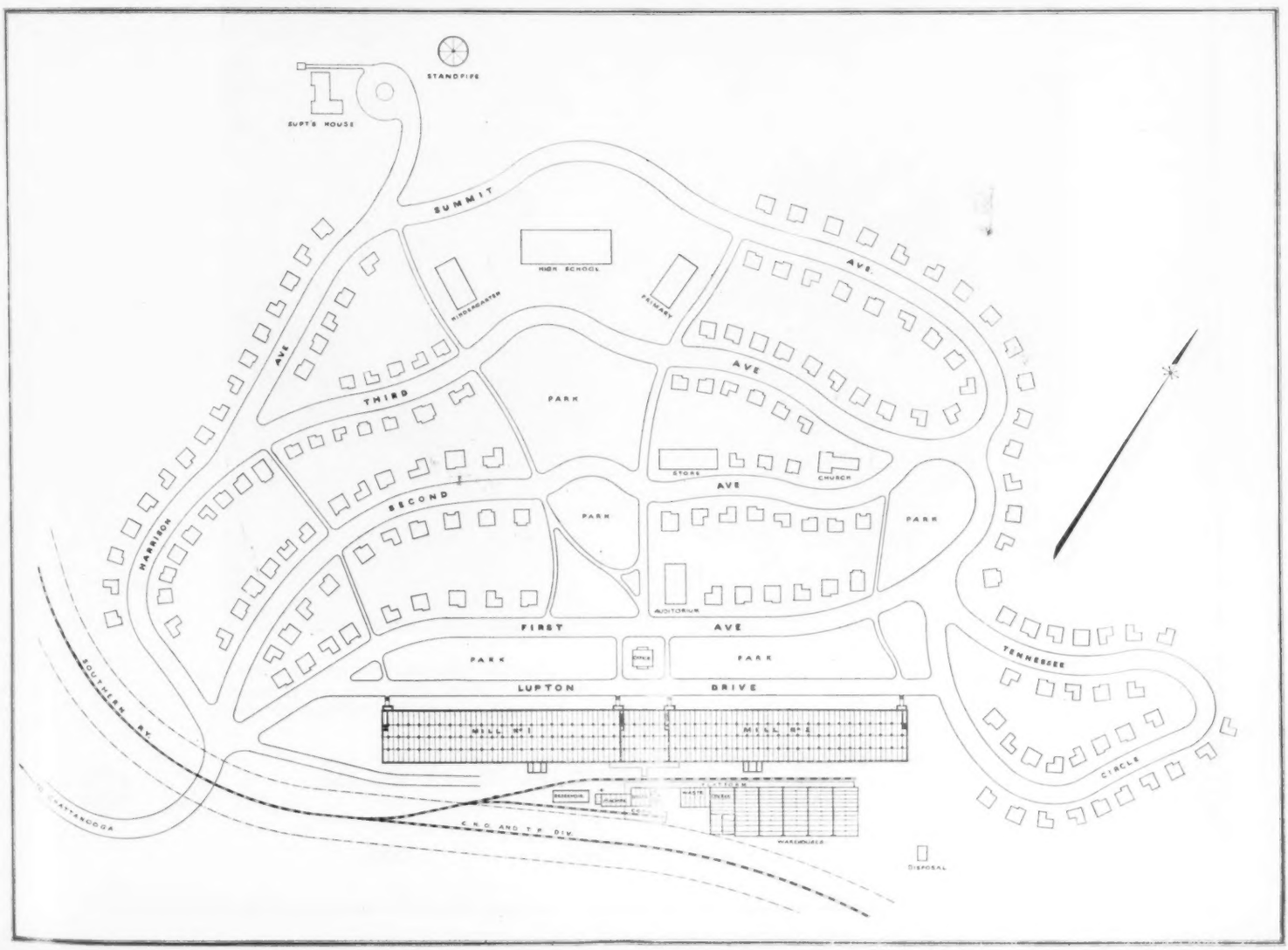
The motor equipment of the mill will be modern in every respect. Very little belting and practically no shafting will be required, as most of the textile machinery will be individually driven. In fact, the only group in the entire mill will be a small battery of warpers. The picker motors will be mounted on "A" frames. The twisters and spinning frames will be connected to their motors by silent chains. The combers, sliver lap, ribbon lap machines, drawing frames, etc., will be driven by small motors.

Individual Motors on Cards

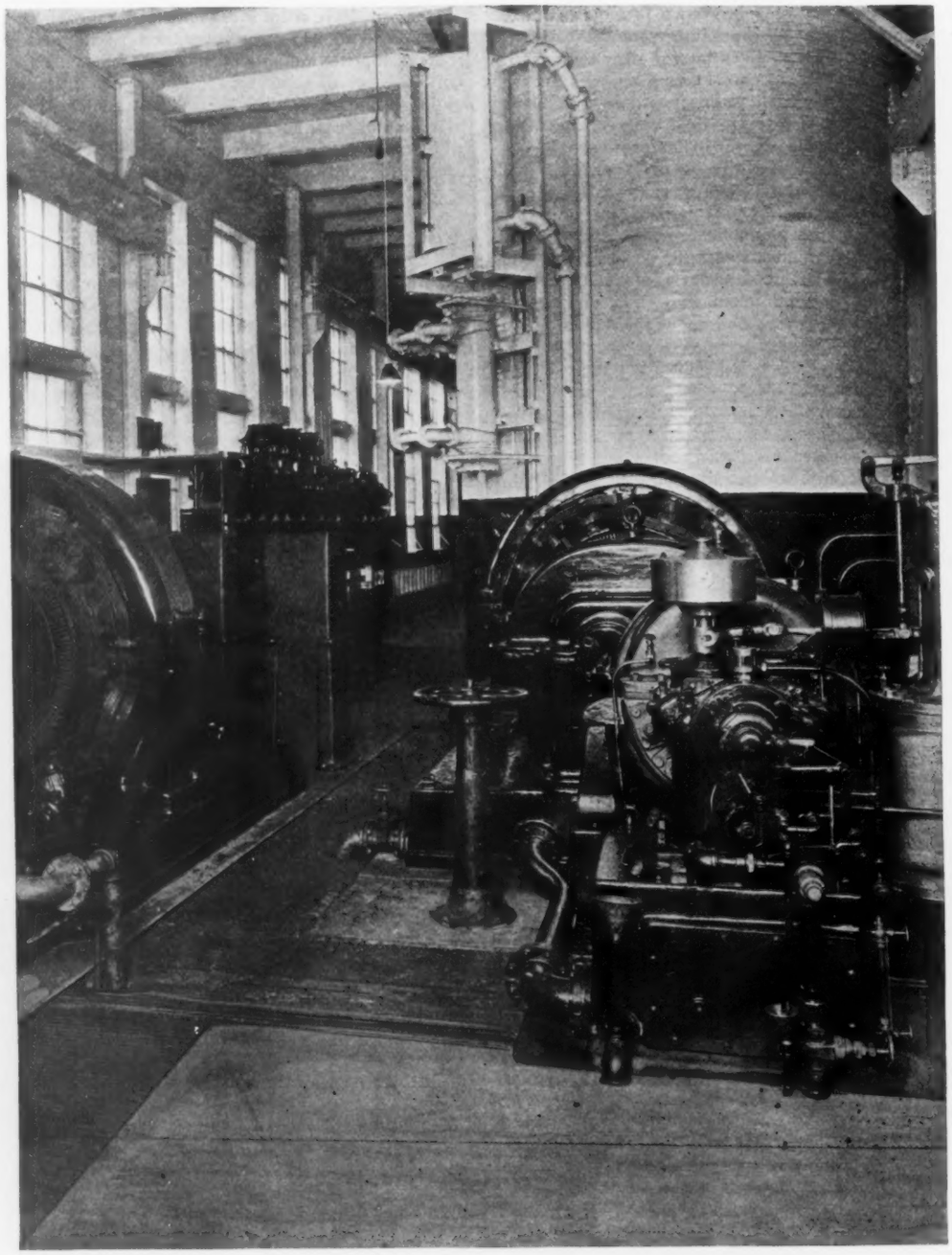
The cards will be individually driven also. This will probably be the first mill in the South to have cards so equipped. The motor will be mounted on a bracket bolted to the card frame and will be geared to the main cylinder shaft. The motor pinion will be micarta to reduce noise to a minimum. A high starting torque will be required to get the card started, but even with this special characteristic the operating efficiency and power factor will be quite up to the standard small motor.

Magnetic switches, push button operated, have been used in a number of instances. The picker room switches are all magnetic to reduce the possibility of picker room fires. Since the magnetic switch case does not contain oil, it can be successfully mounted on the ceiling, thus reducing the wiring cost somewhat. The operation of these magnetic switches on the spinning frames will be watched with particular interest.

The artificial lighting will be of rather high intensity, and in some departments mercury vapor tubes will be installed to eliminate shadows. All wiring will be in conduit and different sections will be protected by automatic oil switches. An induction feeder regulator will be installed on the lighting circuit and the usual switchboard and material equipment have been arranged for. All mill



Dixie Spinning Mills Development; General Layout, Showing Mill No. 1, Mill No. 2 and the Village



FROM PRELIMINARY SURVEY AND ANALYSIS OF THE POWER SITUATION, THROUGH THE PERIOD OF DESIGN AND CONSTRUCTION, AND CULMINATING IN THE ACTUAL PLACING OF THIS POWER PLANT INSTALLATION IN OPERATION AT THE NORWICH BRANCH OF THE

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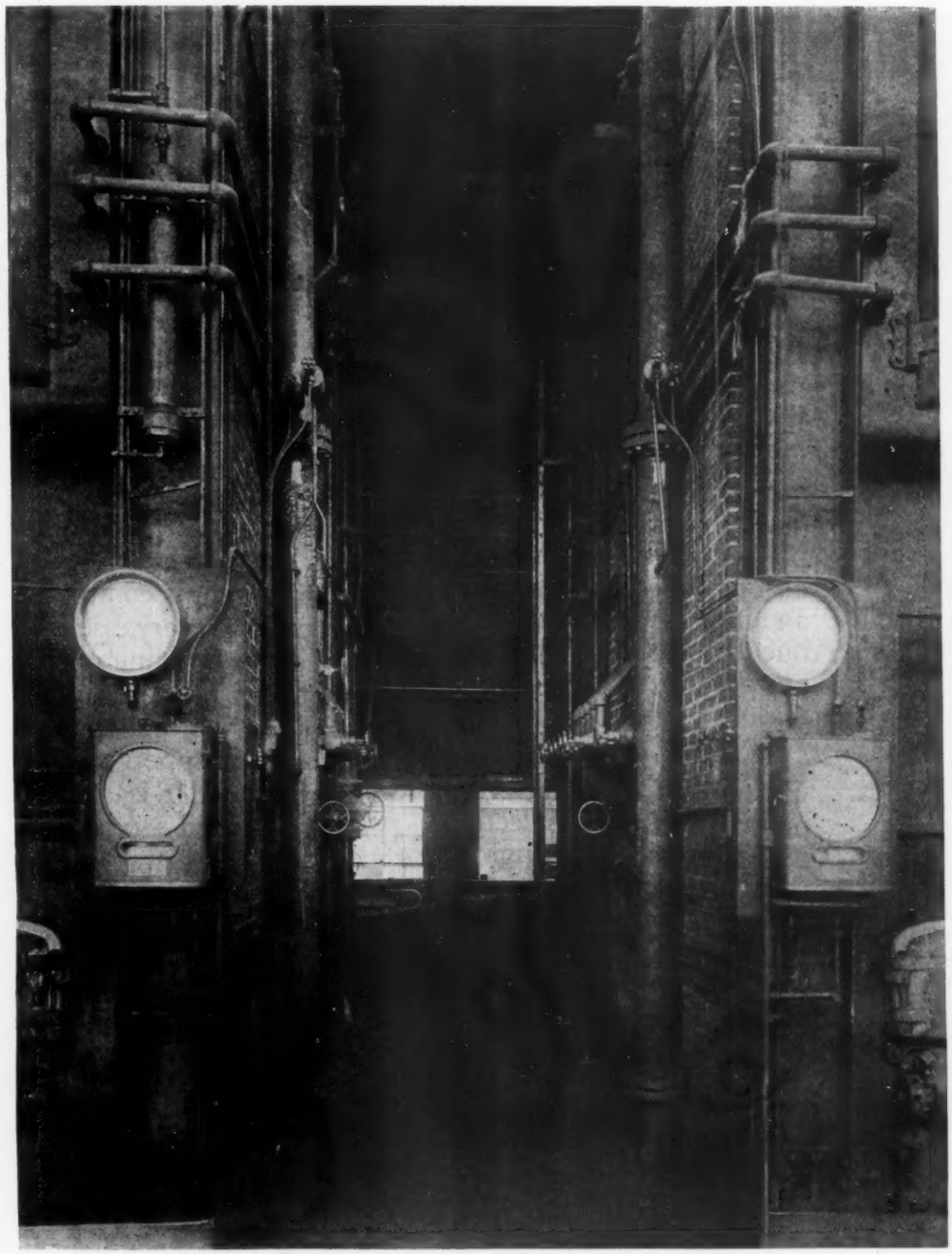

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village lighting will be controllled from a switchboard located in the mill switch house.

All electrical equipment for this mill is being supplied by the Westinghouse Electric & Manufacturing Co., of East Pittsburgh, Pa.

Water Supply, Fire Protection

All of the water for the first unit will be furnished from deep wells and delivered to the mill and village under pressure by gravity from a 300,000 gallon standpipe located on the property. The elevation of the standpipe is 125 feet above the mill floor and insures adequate fire protection at all times.

The water system for the ultimate program has been worked out whereby water will be drawn from the Tennessee River, which is located on the property, properly filtered and delivered to a 2,000,000 gallon concrete reservoir which will deliver water by gravity to the various plants. When this system is put into operation the present 300,000 gallon standpipe now serving the village and Mill No. 1 will be used exclusively for service water. Water from the present deep wells is delivered into a 100,000 gallon reservoir in the mill yard and pumped to the standpipe by means of a 1,000 gallon fire pump.

General Summary

All of the heating and fire protection systems are being handled and installled by the Rockwood Sprinkler Company, and all the boilers, standpipes, etc., are being furnished by the R. D. Cole Manufacturing Co., of Newnan, Ga. Overhead, direct-driven elevators are being furnished by the Otis Elevator Co. All of the construction work for the mill is being handled by the owners with a special organization.

Shawsheen Mill No. 2, Storehouse and Dyehouse

Latest American Woolen Company Subsidiary at Shawsheen Village, Andover, Mass., Continues to Expand—New Five-Story and Basement Spinning Mill, Ten-Story and Basement Storehouse, and Dyehouse—Interesting Features of Construction and Equipment

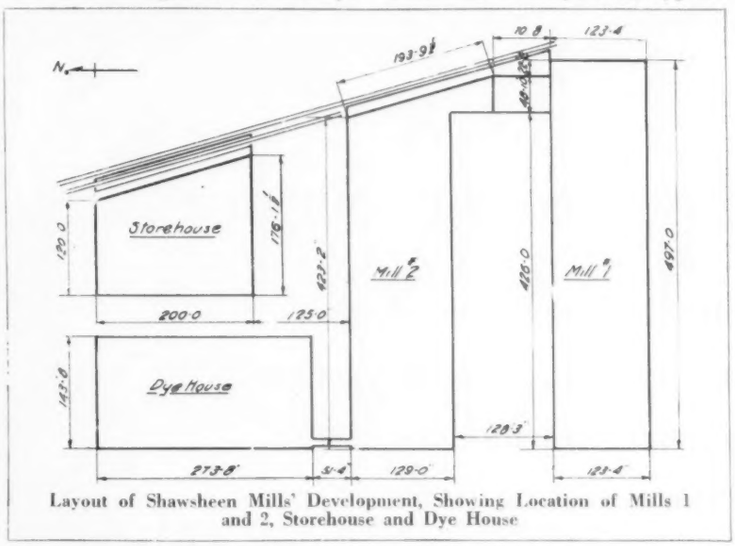
THE Shawsheen Mills, at Shawsheen Village, Andover, Mass., continued to expand their large new textile plant during 1922 and now have nearing completion a spinning mill of approximately the same size as the original unit, a warehouse, and a dyehouse. This group of buildings is all served from a central heating plant, built with ample capacity at the same time as the first mill unit. Necessitating as they have the planning and construction of an entirely new village for the workers, they form one of the most interesting industrial developments since the days when a few brave Boston capitalists conceived and founded Lowell, Mass.

These handsome buildings are situated on high ground, overlooking and surrounded by the modern village of Shawsheen. In order for us to get a clear vision of the group, it will be necessary to go back for a moment to the original worsted spinning mill and boiler house described in TEXTILE WORLD of February 4, 1922. This first mill unit, built of flat slab type reinforced concrete, with red tapestry brick exterior curtain walls, is 497 feet by 123 feet 4 inches for the main body of the mill, with an ell 71 feet by 50 feet 10 inches, served by a T-shaped boiler house, consisting of a main head house 123 feet 4 inches by 53 feet 4 inches, and a stem 69 feet by 51 feet 4 inches, situated about 1400 feet distant from the mill, and connected thereto by a pipe tunnel of ample size.

Layout of New Buildings

The buildings now nearing completion consist of a new spinning mill five stories and basement, 423 feet 2 inches by 129 feet, with an ell 58 feet 3 inches in length. The end of this ell joins with the end of the ell of the first mill, thereby forming a gigantic U-shaped structure, the two legs of the U being the manufacturing units, and the base acting as a general service building for both units. This arrangement gives ample light on all sides, and accessible approaches. The base of the U is nearly parallel with the B. & M. Railroad, has a shipping platform covered by a canopy, and is served by a railroad siding.

Further along this siding is located the new warehouse, a ten story and basement reinforced concrete building with tapestry brick curtain walls, trapezoidal in shape, the base 200 feet, the two legs 120 feet and 176 feet respectively. The long side of the trapezoid parallel to the B. & M. Railroad is served by a railroad siding. This siding for the entire length of the building is enclosed in a brick and steel shed lighted by an overhead skylight, and enclosed at each end by steel rolling shutter doors, facilitating the loading and unloading of cars in inclement weather.



Layout of Shawsheen Mills' Development, Showing Location of Mills 1 and 2, Storehouse and Dye House

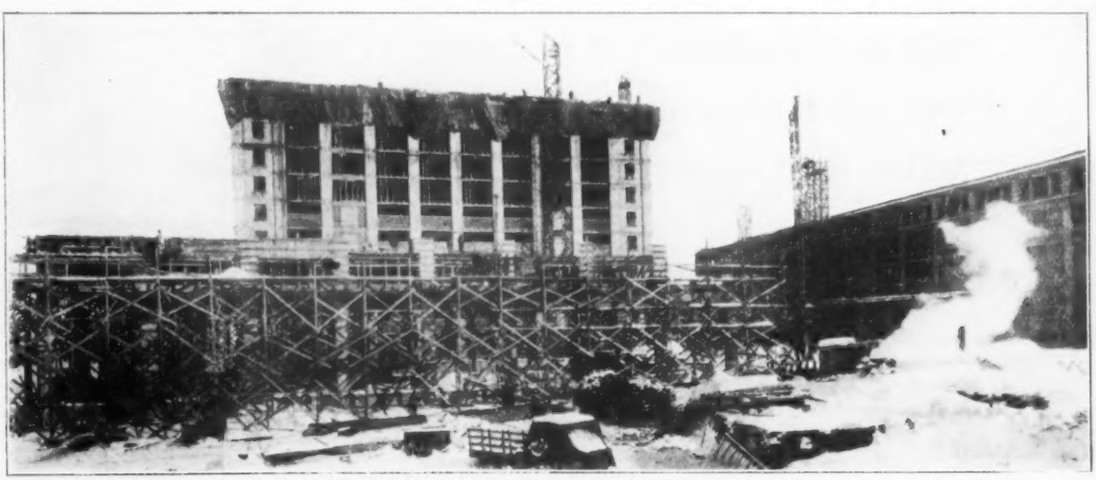
Situated in the rear and parallel to the 200 foot side of the new storehouse is the new dyehouse, 273 feet 8 inches long by 143 feet 8 inches wide, constructed with concrete exterior columns, tapestry brick curtain walls, steel trusses, and wood roof. This dyehouse is connected with the new spinning mill by a covered passageway. A concrete pipe tunnel connects all buildings so that they may be served from the existing boiler house.

A more detailed description of each building should prove of interest, and we will endeavor to set forth only the more essential or interesting details as they occur to us.

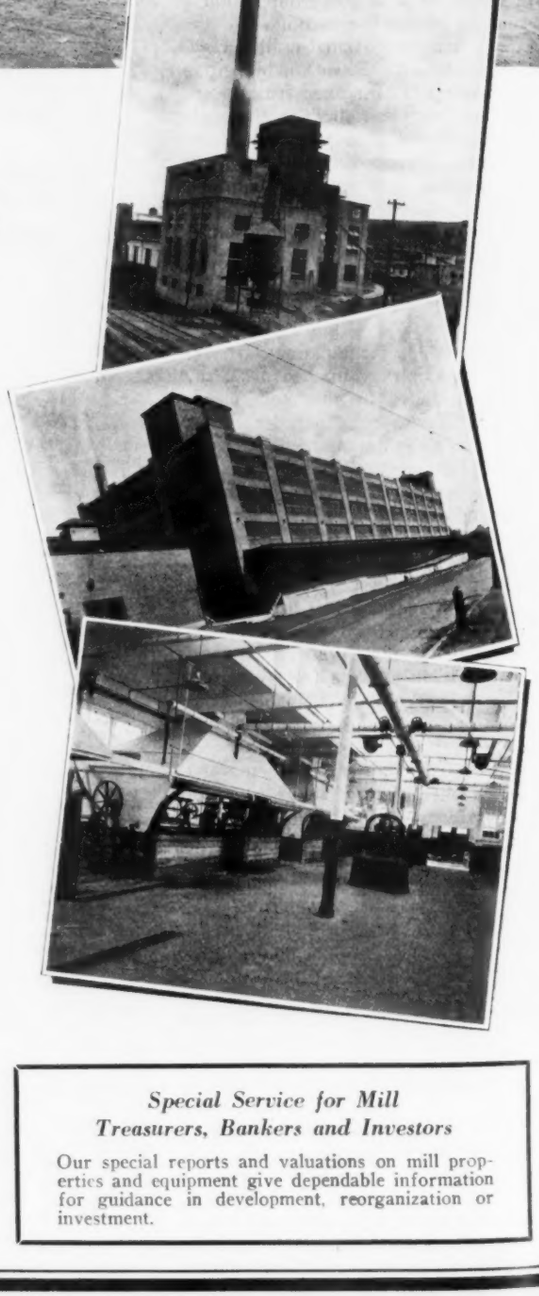
Spinning Mill

The skeleton structure of the spinning mill is of the flat slab reinforced concrete type, which allows a maximum amount of light across the building. The columns have structural steel cores with heavy cast iron bases on concrete pedestals; the object of the steel cores is to reduce the size of the columns. The steel cores are fireproofed with concrete poured on octagonal moulds to give flat surfaces for ease in attaching electric switch boxes, etc.

The top story and roof is of unusual design. Steel beams are supported on concrete filled pipe columns with long-leaf yellow pine roof deck of 2 5-8 inch thick splined planks. The exterior top story columns are of concrete to conform to the exterior architectural treatments. The roof has three longitudinal sawtooth skylights of timber construction extending nearly the entire length. These sawtooths open toward the north and give excellent light for manufacturing processes that are performed on the top floor. This wood



Dyehouse of Shawsheen Mills Under Construction in the Foreground; Storehouse in the Background, and Mill No. 2 at the Extreme Right



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roof deck was installed with a view to eliminating as much as possible any condensation which might occur due to the use of humidifiers, and to reduce the cost of installing a concrete roof with sheet cork insulation.

Floors in the manufacturing portions of the building have 2 by 4 inch bevelled creosoted sleepers firmly anchored to the rough concrete slab with special anchors, the spaces between the sleepers filled with cinder concrete level with the top. To the sleepers is firmly spiked a 2 3-4 inch creosoted plank floor. On top of the plank floor is nailed a tongue and grooved maple floor 13-16 inch thick for a wearing surface. The maple is what is known in the trade as log run, air dried beech, birch and maple.

This arrangement of creosoted sleepers firmly anchored to the concrete, creosoted underfloor and maple top, makes a very rigid support for anchoring the machinery and gives excellent results. The creosoted planking eliminates all trouble due to dry rotting of the underfloor, adding materially to the life of the floor.

Interesting Sash Installation

One of the most interesting and unusual features of this building is the steel sash. In spinning mills of this type which require humidification for the manufacturing processes, considerable annoyance is caused at certain times by condensation of the moist air on the steel sash, thereby greatly decreasing the life, or necessitating considerable expense and inconvenience due to frequent painting.

After a thorough study and comparison of costs of steel and wood sash, decision was made heavily to galvanize all of the steel sash, after fabrication, by the hot dipping process. No paint was applied to the exterior of the sash, although the surface of the putty was painted with a specially prepared paint. Before applying the putty, the inside of the muntin bars were treated with a 5 per cent. solution of copper sulphate to remove any grease that might interfere with the putty adhering to the steel.

To collect and remove the water condensed on the sash, a gutter was formed in the concrete sill, and the water led to the interior of the building in 1-2 inch iron size brass tubes set in the sill underneath the sash. These drainage tubes will be piped to the leader lines. This installation is unique, and as far as the writer knows, the first of its kind. Steel sash was furnished by the Detroit Steel Products Co.

Expansion and contraction in a reinforced concrete building of great length requires careful consideration as to design. The condition was met by installing two expansion joints, one at the juncture of the main building and the ell, the other midway of the length. The expansion joints are located on column lines and cut the building into sections from the footings to the roof.

Two separate and distinct columns are used to replace the single column, and special treatment is required at the exterior columns to avoid an unsightly crack showing vertically throughout the length of the column. The expansion joint across the floor is finished off at the floor level with two 4 by 4 inch angles, two legs back to back, a checkered steel plate riveted to the top of one of the angles and sliding on top of the other angle.

Machinery Equipment

All the combing plant for the new mill, consisting of 48 combs, backwashing and gilling, and vigoureux printing machinery, is being furnished by Taylor, Wordsworth & Co., Leeds, England, through Edward Jefferson, their American agent, with whom the American Woolen Company has done business for years. This makes the largest extension to combing plants in the United States since the American Woolen Company erected the Ayer Mills at Lawrence.

Ten-Story Warehouse of Shawsheen Mills

The gilling and drawing machinery is being supplied by the Nouvelle Societe de Construction, Guebwiller, Haut-Rhin, France. This firm was formerly known as N. Schlumberger et Cie. and is represented in this country by the Framerican Industrial Development Corporation of New York.

The 32 French spinning mules are being supplied by Platt Bros. & Company, Ltd., of Oldham, England, on short time delivery. This is the same firm which supplied the Wood Worsted Mills with much of its spinning machinery. In addition to these three European firms, there are a large number of American firms equipping this mill with the most up-to-date machinery of its kind made in the United States. Parks-Cramer humidifiers of the high duty type with automatic regulation are used.

Escalator and Elevators

Two freight elevators and one escalator were installed, one elevator located about midway of the building and on the inside of the U, the second near the center of the side forming the top of one leg of the U. The escalator was placed in the ell. These elevators and escalator, together with a stairway adjoining the second elevator, and a stairway and two elevators in the ell of the first unit, give ample capacity for the rapid entrance and exit of employes, and the quick handling of goods or materials in process of manufacture.

Elevators are equipped with vertically sliding fireproof doors with electric interlocks, which when the doors are open automatically lock the elevator car in position until the doors are closed, thereby eliminating accidents caused by persons endeavoring to get on the car while it is in motion. The escalator is another unusual feature of this building, and greatly facilitates the movement of employes to their stations on the various floors.

Roof coverings on all buildings are of ply felt laid in coal tar pitch with gravel surface, using 5 ply felt and pitch on wood roof decks, and 4 ply on concrete. On steep pitched roofs, such as sawtooth roofs, the felt is laid in steep roof asphalt.

The exterior architectural treatment is particularly pleasing. Each corner is designed to resemble a tower, which breaks the monotony of a plain rectangular building, and presents the entire side as an enormous panel set between two columnar towers. The vertical lines are softened and blended into the whole scheme by an overhanging concrete belt course ornamented with mouldings, extending around the building at the top floor level, and an overhanging belt course of similar design at the roof level.

All exterior curtain walls are rough tapestry brick, full range of fourteen colors from light to very dark red or purple; 8 inches thick and plastered on the inside. The exterior concrete columns, towers, belt courses, window sills and lintels have been given a thorough rubbing with carborundum stones and white cement. This gives a beautiful, smooth white surface that forms a most pleasing contrast with the soft, rich red tone of the tapestry brick.

New Storehouse

The storehouse has a skeleton of flat slab reinforced concrete floors and roofs, supported by octagonal concrete columns on 20-foot centers, reinforced with cold drawn hard steel spirals and vertical rods. This flat slab type of design, having as it does a flat ceiling without beams and girders, gives maximum storage space with minimum height of building, cuts down the length of travel of the elevators and produces an ideal storage warehouse.

Offices are located on the first floor convenient for receiving and shipping goods. The top floor, which may be used for working space, has been given additional light and ventilation by the installation of a large hipped skylight, 18 feet 8 inches wide by 118 feet 8 inches long, in the roof, with four 24-inch-diameter Storm King ventilators set in the ridge. The skylight is of the long span self-supporting type, glazed with ¼-inch ribbed wire glass, condensation gutters formed in the supporting bars, the gutters collecting any water which may condense on the glass and discharging it onto the roof. All metal parts are covered with a protection of 16-ounce copper. The long span construction eliminates all structural steel supporting trusses, and gives maximum light at minimum cost of installation.

Floors throughout are granolithic concrete, hardened with a liquid concrete hardener, and worked to a smooth, hard surface with electrically driven cement finishing machines.

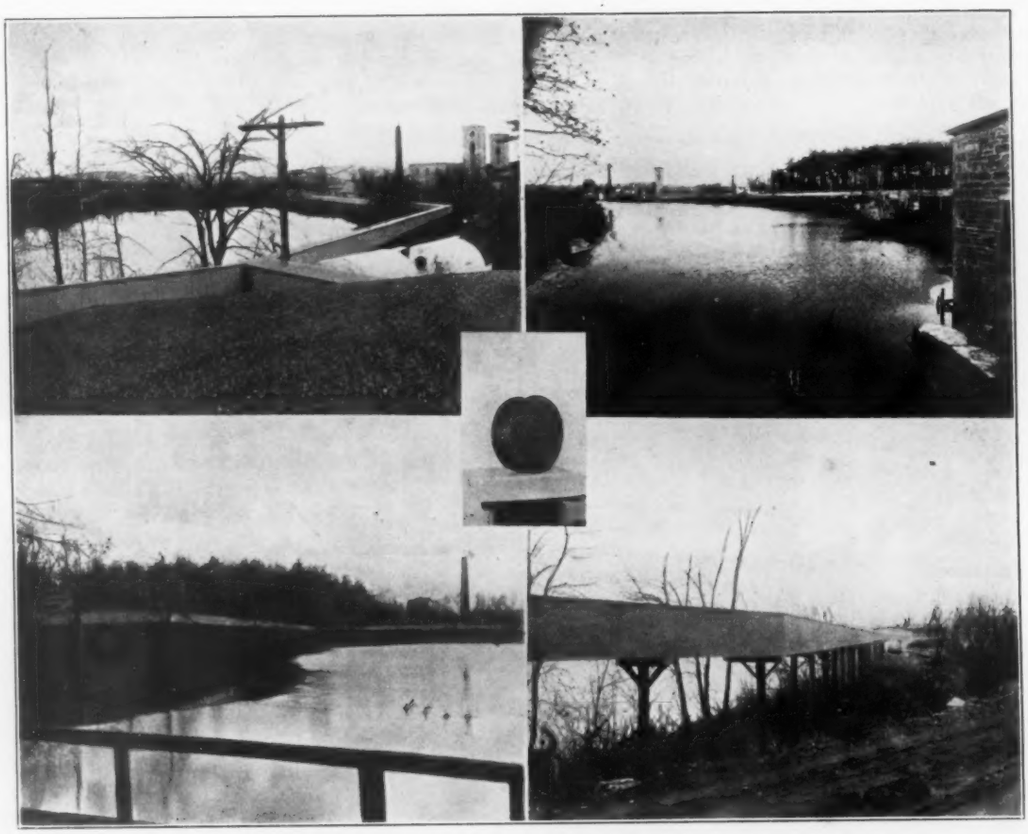
Story heights, including the basement story, are 12 feet 6 inches top of finished floor to top of finished floor, except the top story, which is approximately 17 feet 3 inches. In a storage building less light and more wall storage space is required than in a mill, therefore the exterior walls have been carried up 6 feet 3 inches above the floor level and the window openings cut down to 5 feet 2 inches in height.

Steel sash was used throughout; it was delivered to the site without painting, given a coat of red lead and oil before and two coats of paint after installation.

The brick and steel car loading shed enclosing the railroad track, as previously mentioned in this article, has large steel rolling shutter doors at either end. Openings from the main building are provided with steel rolling shutter doors, equipped with fusible links to close automatically in case of fire.

Elevators and Hoists

Two stairwells located in diagonally opposite corners of the building, two freight elevators, one push but-



The above reproductions from photographs illustrate a conveyor for transporting grey goods and bleached goods between two plants, a distance of 1,100 feet. These goods were formerly carried in bales and boxes on gasoline trucks. In less than one year, the entire cost of this conveyor will be paid for from the reduced expenses of transportation.

The heart of the system is illustrated in the central picture showing a ball-bearing brass reel, especially designed for this system. The tension on the goods is unbelievably low.

This is but one of scores of problems which this organization has solved for its clients, not through any superior ability, but through the exercise of an unprejudiced mind coupled with a broad experience in mechanical problems. Twenty years' experience in the finishing of fabrics has provided a mental equipment that can be of distinctive service.

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ton controlled passenger elevator, one continuous tray elevator located in the center of the building near the track side, and two whip hoists on the side next the dyehouse serve all floors. The freight elevators are equipped with vertically sliding doors of similar design to those in the mill. The passenger elevator, controlled by push buttons on each floor and on the car, does away with the necessity of a special operator. The tray elevator operates continuously to move goods from one floor to any other floor.

Glazing throughout the building is double thick American quality "B" clear glass, set in special steel sash putty. Both the mill and storehouse are equipped with an automatic sprinkler system.

Exterior architecture is treated somewhat differently from the mill. The corner bays are entirely of concrete flush with the building lines. Heavy overhanging belt courses circle the building at the second and top floor lines and an overhanging cornice at roof level. The top story exterior columns and concrete mullions between have deep rustications or grooves. Other concrete work and the brickwork is similar to the mill building. This design as a whole forms a gigantic columnar type of building with base, shaft and capital so familiar in tall modern buildings.

New Dyehouse

The new dyehouse has several interesting features which we will attempt to describe. The exterior columns and beams are of reinforced concrete construction with tapestry brick curtain walls between. On the long sides of the building columns are spaced 18 feet, center to center. On the inside are slots recessed down from the top to form seats for the steel trusses that span the full width with one steel supporting column in the center. Trusses are pitched from the center to either side for drainage.

A 16-inch brick wall across the building with fireproof doors divides the building into two nearly equal parts. Roof deck is 2¼ inches thick hard pine resting on hard pine timber purlins running lengthwise of the building. Ten hipped skylights are set over openings on the roof; four of these are 12 feet 4 inches by 19 feet 2 inches, and six are 9 feet 4 inches square. A ceiling of 2-inch kyanized spruce planks has been formed by supporting the ends of the planks on the angles which make up the bottom chord of the trusses. Flat skylights of equal area have been installed in this ceiling directly underneath seven of the roof skylights to give added light to the interior of the building.

The object of the flat ceiling is to form a heated attic space to reduce condensation. Kyanizing was decided upon to prolong the life of the lumber, which is all too short where untreated material is used under conditions of such extreme dampness as occurs in dyehouses.

A mezzanine floor four bays long by four and one-half bays wide was hung from the roof trusses in one corner of the building. A portion of this floor is lighted by three of the skylights previously mentioned. Window openings are enclosed with double sash, double hung, with bottom hinged transoms all glazed with double thick American "B" quality clear glass. This gives an air space between the double sash to assist in reducing condensation.

The floor, which in dyehouses is subject to particularly severe wear, is built on the ground. A four-inch concrete base, one-inch sand cushion, vitrified paving brick top, well grouted, gives a most substantial floor that should stand for many years of hard usage. The dyehouse is connected to the new mill by a covered passageway having concrete walls, heavy timber roof, and steel sash windows.

W. B. Knowlton, Lawrence, Mass., is the engineer and architect of the work. Construction is being carried out under his supervision by the Boston office of the Turner Construction Company. The property is owned by the Shawsheen Mills, Inc., William M. Wood, president.

Phoenix Dyehouse and Finishing Mill

Building with Eight Stories and Basement Erected in Milwaukee—Dyeing on Two Top Floors to Prevent Vapor and Fumes from Entering Other Departments of the Mill—Extensive Use of Conveyors for Handling Materials Between Departments and for Shipment

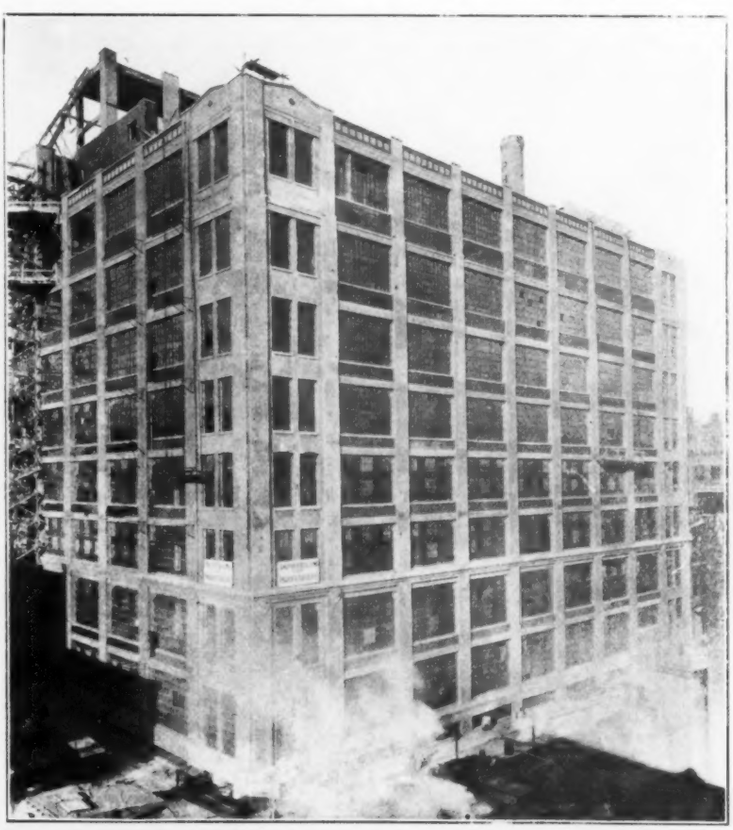
By *W. Fred Dolke, Jr.**

THE PHOENIX HOSIERY COMPANY at Milwaukee (formerly the Phoenix Knitting Works) is now moving into a new dye house and finishing building which is unusual in a number of respects. The limitations of a downtown location, with definite lot area, restricted building height, together with the requirement of maximum floor area and the necessity of maximum natural light and ventilation in the dyeing and boarding rooms, gave the designers, Lockwood, Greene & Co., engineers, a most interesting problem. This article is intended to describe the solution.

The Phoenix Company has enjoyed a remarkable growth in the last few years, as evidenced by the plant expansion. Fourteen buildings are now occupied and this latest addition is one of the largest single units in the country devoted entirely to hosiery finishing.

The Phoenix plant is located in downtown Milwaukee. The site of the new structure is across Buffalo street from the full fashioned mill, and is separated by an alley from Building No. 7, which houses the winding and underwear departments and the cafeteria.

The property is 120 feet by 180 feet, fronting on two streets and an alley. The city ordinance limited the building height to 125 feet above the sidewalk. The structure occupies the entire lot, except a court 20 feet by 60 feet on the alley side. To provide the required floor space, eight stories and a basement were decided on. The building is to house the following departments: undyed stock room, dye house, boarding rooms, mating and boxing rooms, empty box storage, finished goods storage, packing and shipping, and embroidery department.



New Dyehouse and Finishing Building of Phoenix Hosiery Co., Milwaukee

In the consideration of the arrangement of the departments in the building, a number of interesting factors presented themselves to the engineers. The gray stock will be delivered to the building largely through a tunnel under the street into the basement and partly by truck. The basement is considerably below the sidewalk, and being partly occupied by the boiler and power plant and the water softener and pump room, is not well suited for a manufacturing operation but makes good storage space. The undyed stock room was therefore placed in this space.

Dyehouse at Top of Building

The next thought was that the dye house should be placed at the top of the building, not only to get good light and ventilation, but also to prevent the unavoidable vapor and fumes, which naturally will go up instead of down, from penetrating the rest of the building. This location also makes it possible to raise the hosiery the entire height of the building in one lift so that in subsequent operations it can drop from floor to floor by gravity. The dye house required not quite two floors, so the eighth and seventh floors were assigned to the dye house. The problem of raising the tremendous quantities of water was not considered serious.

The boarding, mating and boxing rooms are located on the fourth, fifth and sixth floors, each story being divided approximately 40 and 60 per

* Lockwood, Greene & Co., Engineers, Chicago and Boston.

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Duncan Mills, Greenville, S. C.
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Fairmont Mfg. Co., Fairmont, S. C.
Hamilton Carhartt Cotton Mills, Rock Hill, S. C.
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Hermitage Cotton Mills, Camden, S. C.
Judson Mills, Greenville, S. C.
Linford Mills, Inc., Belmont, N. C.
Linn Mills Co., Landis, N. C.
Norris Cotton Mills Co., Cateechee, S. C.
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Pelzer Mfg. Co., Pelzer, S. C.
Perfection Spinning Co., Belmont, N. C.
F. W. Poe Mfg. Co., Greenville, S. C.
Republic Cotton Mills, Great Falls, S. C.
Rhodhiss Mills Co., Rhodhiss, N. C.
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Sterling Cotton Mills, Franklinton, N. C.
Thrift Mfg. Co., Paw Creek, N. C.
Union Buffalo Mills Co., Inc., Union, S. C.
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cent, respectively, between the boarding and the mating and boxing departments. This arrangement was planned to provide a minimum amount of handling of the boarded goods. The dyed goods drop by gravity from the dye house, move across the story, and then drop by gravity again to the storage room as shown on the accompanying diagram.

The third story was originally laid out to provide for storage of empty boxes, but the space is too valuable for this purpose, so plans are being worked out to hold boxes in storage at the outside box shop, with a day-by-day supply maintained in each mating room. This story will be available for other purposes.

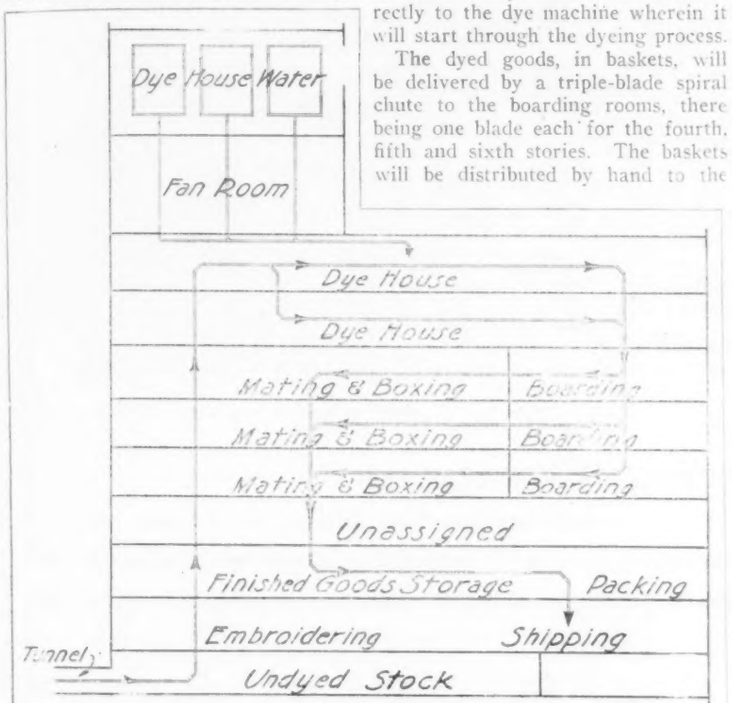


Diagram Showing Flow of Hosiery Through New Dyehouse and Finishing Building of the Phoenix Hosiery Company

Storage of Finished Stock

In the second story, standard steel bins are provided for storage of finished stock. The bins are six tiers deep, being 15 feet high with a mezzanine floor resting on the bin structure. This mid-floor makes ladders unnecessary, as any box can be reached from the floor, and provides for better sub-division of the stock, with consequent reduction in cost of distributing stock and filling orders. Order filling, checking and packing will be done on this floor so that all responsibility for stock and shipments can be concentrated in one department. Packages going by express or parcel post will be completely closed here, freight shipments, however, being placed in wood cases in a special room in the first story adjoining the shipping vestibule.

The embroidery department has been located in the first story. Home workers thus have ready access to the department for receiving and delivering goods.

Use of Conveyors

In so far as has seemed practical, goods will be handled on conveyors. Dye batches will be made up in the undyed stock room according to production schedules and the hosiery, either in bundles or in net bags, will be elevated by a specially designed conveyor to the eighth story for delivery to basket trucks, or through a chute from the eighth story with deflector controlled from the basement, to the seventh story. The bulk of the hosiery dyeing will be done in the eighth story, with yarn dyeing, bleaching and underwear dyeing in the lower dyehouse. It is anticipated that later conveyors may be installed so that hosiery can be delivered directly to the dye machine wherein it will start through the dyeing process.

The dyed goods, in baskets, will be delivered by a triple-blade spiral chute to the boarding rooms, there being one blade each for the fourth, fifth and sixth stories. The baskets will be distributed by hand to the boarders, and the boarded goods, on wheeled racks, pushed by hand to the mating tables.

The boxed goods, in suitable baskets, will go down a double-blade spiral chute to the stock room, with delivery to either the main floor or the mezzanine. From the packing space, parcel post packages go by chute and belt conveyor to a bin in the shipping vestibule and express packages by chute and gravity conveyor direct to vestibule and into truck, while the goods for bulk freight shipment or export go by chute to be packed in the first story. The complete conveyor system was laid out by the engineers, and was designed in detail and installed by the Alvey-Ferguson Company of Cincinnati.

Ventilating Arrangements

Five separate ventilating units have been installed, three for supplying fresh air and two for exhaust purposes. The dyehouse system will supply an unusually large quantity of fresh air along both sides of the dyehouses with an equal amount of air exhausted at the center. The circulation will be rapid and the unavoidable vapor always present in a dyehouse will be absorbed rapidly.

The problem in the boarding room is to keep the workers cool, especially in hot weather. For this purpose, a large quantity of properly tempered air will be introduced at the floor, and a similar quantity exhausted at the ceiling, with a resultant movement of fresh air in the zone occupied by the operator.

The remaining system will provide fresh air in the mating and boxing rooms, where there will be a rather large concentration of workers. The ventilating units were installed by the Bayley Manufacturing Company of Milwaukee.

All water for the dyehouse is softened in the basement, and elevated to three 50,000 gallon tanks located in a tank house above the roof, two tanks holding cold water and the other hot water (180 degrees). In each dyehouse story there is installed a complete loop each of piping for cold and hot water, and steam.

Floors and Trucking Aisles

The dyehouse floors are of asphalt construction. The waterproofing and the mastic under the dye machines were installed by the Johns-Manville Co., and the asphalt block trucking aisles by the Asphalt Block Pavement Company. The floors are liberally supplied with drains, and provisions made for direct connection of machines to drains.

The building is flat slab reinforced concrete construction throughout, with Lupton projected-vent type of steel sash and wood top floors except in dyehouse and basement. Toilet rooms are modern in every respect with terazzo floors and marble partitions.

The elevator equipment includes one passenger car, 7 feet by 8 feet, with a speed of 350 feet per minute, and one freight elevator, 12 feet by 15 feet, with a speed of 250 feet per minute. The freight car is made large enough to carry the largest dye machine which may be used. The freight elevator doors are Peelle, tin-clad doors, operated by a mechanism installed by the Quincy Elevator Gate Company. The passenger elevator doors are equipped with operators and safety locks.

The power equipment includes four 300 rated horsepower Wickes boilers, an engine generator set moved in from an older Phoenix plant, and all necessary heaters, pumps and like equipment.

Pile driving began on February first, nearly 2100 piles, averaging 57 feet, being driven. Spring floods in the South delayed the delivery of piles and it was nearly June first before the general contractor, Walter W. Oeflein, Inc., of Milwaukee, was able to form the first floor. The third and fourth floors were turned over to the owners on Dec. 15, completely ready for a Christmas celebration and the occupancy of the building has proceeded rapidly since that time.

Yarn Mill for Wm. Crabtree & Sons

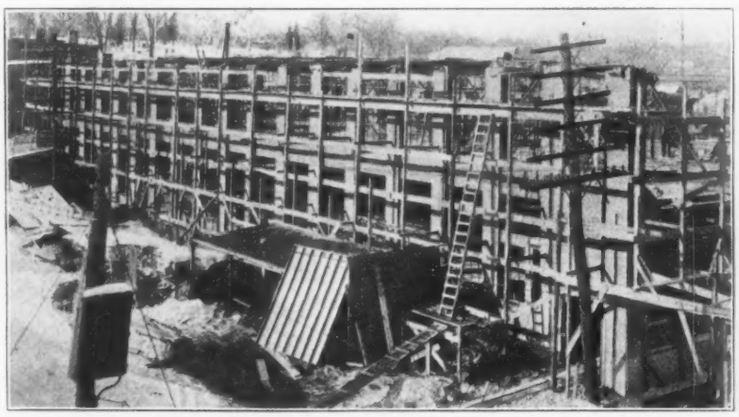
Designed for Worsted Drawing, Spinning, Twisting and Reeling —Provision for Expansion

By *David Elwell**

WILLIAM CRABTREE & SON are old, established manufacturers of machine and hand-knitting worsted yarns on the Bradford system. Their general office and main plant is at Montgomery, N. Y., with a branch mill at Newburgh, N. Y. The Newburgh plant has been operated for many years in leased premises, but the owners desired a modern plant of their own in that city. Accordingly, plans were made and contracts awarded for a new mill that will do drawing, spinning, twisting and reeling only, prior and subsequent processes being handled at Montgomery as at present.

The new building was designed particularly to suit the processes involved and to permit logical expansion of the structure over the site as required. It is a two-story and basement construction. The main building fronts the street running east and west and is 152 by 78 feet, with an east wing 100 by 62 feet. This wing may be further extended, and the structure is arranged for a similar west wing, as growth demands, with a 30-foot wide light and teaming court between,

* Lockwood, Greene & Co., Engineers, New York Office.



Worsted Yard Mill of Wm. Crabtree & Sons, Newburgh, N. Y.

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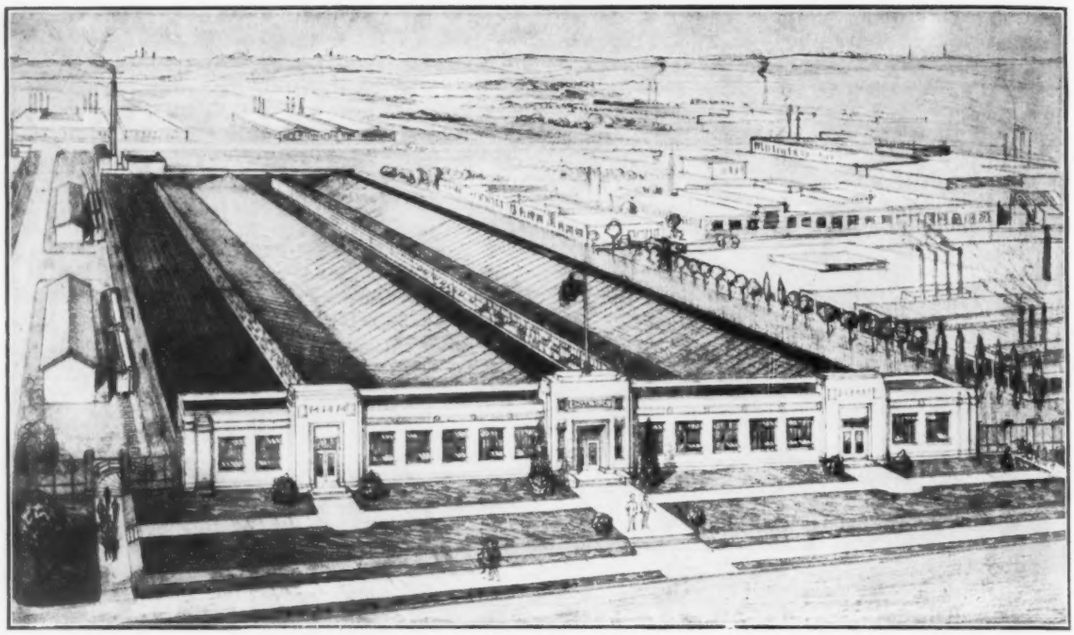

A WIDMER FACTORY

The Atlas Tack Corporation of Fairhaven, Mass., has given Widmer Engineers the contract for its great, new factory in St. Louis. The dimensions of the main building—shown above—are 203 ft. x 503 ft.

Widmer Engineering Company

Engineers and Constructors

506 Laclede Gas Bldg., St. Louis, Mo.

Progress Picture showing new Addition to the Loray Mills, Gastonia, N. C., for the Jenckes Spinning Company of Pawtucket, R. I. Aberthaw Construction Company, Contractors.

Your New Year Expansion Program

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giving an ultimate layout in the form of a "U." The building is of brick with a facing of special brick on exposed sides. The interior beams and girders are of steel on cast iron columns. The floors are plank, with maple top, except basement, which is concrete. Story heights are basement 9 feet 4 inches, others 14 feet top to top.

Column Spacing for Spinning

Typical column spacing for the main building is 16 feet 8 inches by 25 feet inside. The spinning and twisting frames are the largest machines in size and number, and their efficient setting in the structure resulted in the above spacing, providing for two rows of frames up to 200 spindles, frames setting crosswise of the mill with a wide central alley lengthwise of it. The 16 feet 8 inch dimension is correct for the proper setting of two frames between interior columns. The ends of frames facing the walls admit the maximum of light from windows to the working alleys between.

The column spacing imposed by the efficient machinery arrangement indicated steel construction for the floor framing as the most desirable for a permanent and economical structure.

Stock is received and shipped in first floor of the wing. Drawing is handled on the first floor of the main building; spinning and twisting are on the second floor of the main building, and reeling is done on the second floor of the wing.

The basement, in addition to providing general storage space, includes the heating plant, fireproof garage and transformer vault. A tower in the interior angle between main building and wing includes electric elevator, fireproof stairs and toilet accommodations.

The plant needs no process steam; high pressure boilers are not required, and a low pressure heating system is being installed. The mill power will be purchased from the Central Hudson Gas and Electric Co. All motors are ceiling mounted for belted operation, the spinning and twisting being individually driven, and the drawing and reeling on group drives.

Lockwood, Greene & Co. are the architects and engineers under whose direction the building illustrated is being erected. Casper Ranger Construction Co., Holyoke, are contractors on the building. A. C. Smith Plumbing and Heating Co. of Newburgh are handling work in their line and the H. G. Vogel Co., New York., are handling the fire protection. On completion, the owners' present equipment will be rearranged and put into use in the new building.

Reconstruction of Dwight Mills

Ten Year Rebuilding Program Completed Last Year at Chicopee, Mass., Gives Increased Output—Old Site Utilized for New and Larger Buildings of Slow-Burning Mill Construction—Redevelopment of Water Power, with New Power Station and Equipment

MANY of the old-established manufacturing plants in the textile industry have found it necessary to provide more space for manufacturing, due to the increased demand for their products from year to year. There are two ways in which additional space may be secured: first, by putting up additional buildings and covering more ground; second, by removing obsolete structures and replacing them them with well designed, serviceable mills, better fitted to the present needs of the industry.

One of the best known cotton mills in the United States is the Dwight Manufacturing Co. of Chicopee, Mass. Its products, including sheetings, shirtings and high grade cotton dress goods, are recognized as standard wherever sold. The plant in which these goods are made is located between an old power canal and the Chicopee River.

In 1909 business conditions had developed to a point where a reorganization of the plant was necessary. Some of the structure were inadequate and others obsolete. Preliminary sketches were made and a program of replacement and enlargement laid out. This called for the utilization of the old site for new and larger buildings in place of the old mills, with the exception of some storehouses, cloth rooms and the No. 8 weave shed, which is a comparatively modern structure.

More power was needed, and four 350 H.P. water tube boilers with economizers were placed in an extension to the existing power plant. In addition the water power has been redeveloped, as described later in this article.

Started Work in 1911

In 1911 the replacement of the mill buildings was begun. The start was made at the east end of the property and the plans called for the removal of the old No. 1 and No. 2 mills, and the No. 1 and No. 2 picker house. The new No. 1 mill was designed to be 113 feet wide and 545 feet long; five stories and a basement.

This new mill was to be used as follows: storage of machine parts in the basement; weaving on the first and second floors; carding and drawing on the third floor; spinning on the fourth floor; spinning and spooling on the fifth floor. A section 57 feet wide and 355 feet long was built first. This much could be entirely finished without disturbing the existing buildings.

After this section was completed and the south side and west end were closed in with temporary partitions, the machinery from the old No. 1 and No. 2 mills was moved in and put into operation. The old buildings were then removed and the balance of the 355 foot section was completed.

Standard Mill Construction

The building was of standard, slow-burning mill construction, with brick walls, wood sash and wood floors on steel beams. The columns were cast iron in the lower stories, and wood above. The building was designed with the main stair tower on the middle of the south wall and in this tower was located, on each floor, an overseer's office.

The level of the floor of the overseer's office was made about four feet above the main floor of the mill, and a bay window was built out into the room so that the overseer could have an unobstructed view of the room at all times.

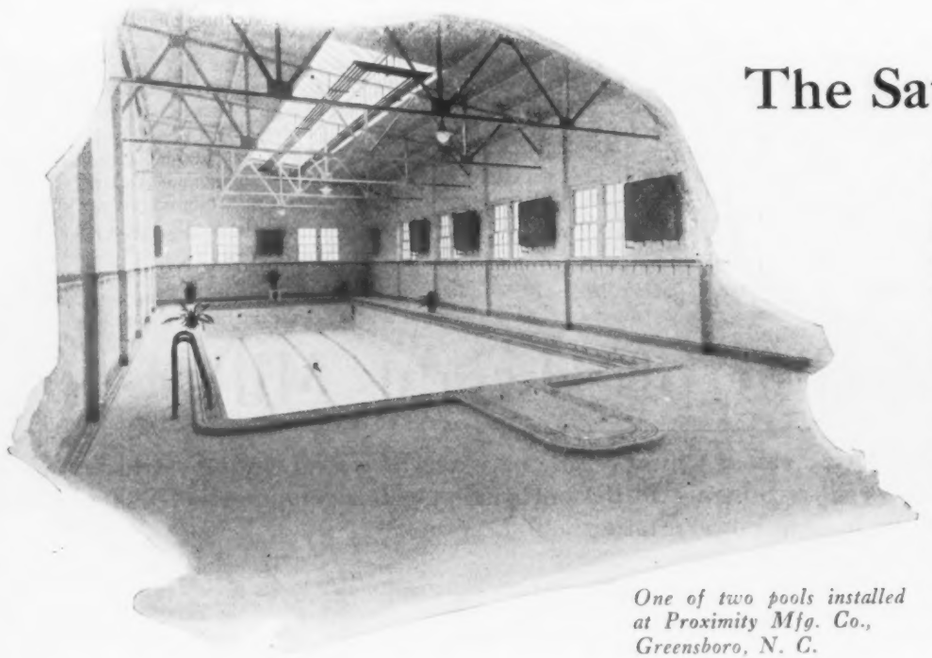
Another stair tower was built in the southeast corner of the mill. Two toilet and elevator towers were located on the north wall of the mill.

It was decided at this time (Fall of 1912) not to build the remaining 187 feet of the No. 1 mill until a part of the new No. 2 mill should be completed, to provide a place for the pickers in the old No. 1 and No. 2 picker house.

The plans prepared were for a building 172 feet long, with an ultimate length of about 335 feet and 72 feet wide, so as to keep the south line of the building the same distance from the canal as the No. 1 mill, and not to interfere with the steam power plant.

This building has a dust room in the basement, opening pickers on the first floor, finishing pickers on the second

Reconstructed Dwight Mills; Buildings at Right of Chimney and Power Station Completed in 1922



One of two pools installed at Proximity Mfg. Co., Greensboro, N. C.

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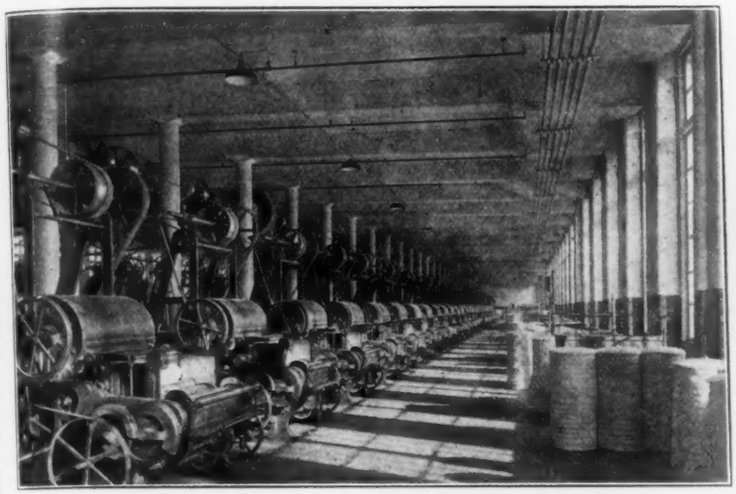
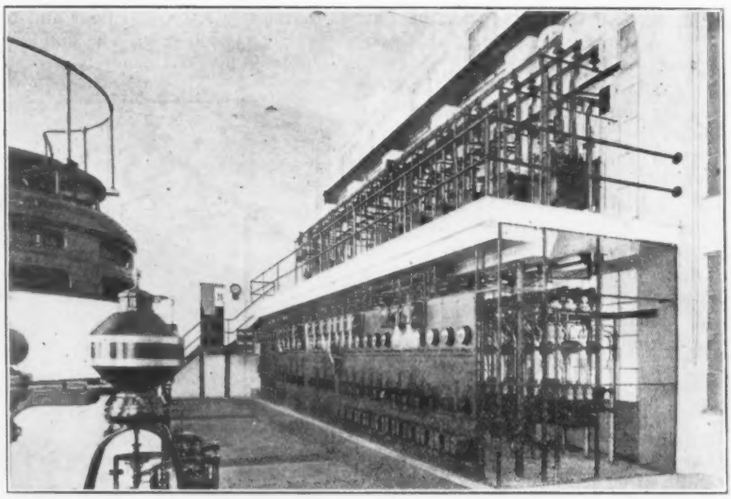
floor, ring spinning and twisting on the third and fourth floors and slashing on the fifth floor.

The building is of standard, slow-burning mill construction with brick walls, wood sash, wood floors on wood beams which were supported on wood columns, except in the basement, where the columns were made of concrete. The basement and first floor after the No. 2 mill was completed and a section about 143 feet long was built. This building is designed for future extension and the ultimate length is to be 418 feet. The arrangement of machinery is similar to that of No. 1 mill. When in the future this last section is added, the completed mill will be nearly 1300 feet long, extending to No. 8 weave shed and connected with it.



Interior View of Dwight Mill, Showing Fireproof Construction



Switchboard Controlling Electrical Distribution

were fireproofed throughout with wire lath and plaster, because of the fire hazard in picker rooms.

In the east end of No. 2 mill a tower was built which provided for stairs, an elevator and a dust chimney. This tower was designed to serve both the No. 1 and No. 2 mills. The dust chimney is 10 feet wide by 24 feet long, and was carried from the basement to 10 feet above the roof. This chimney is of sufficient size so that the air velocity is low and very little of the dust passes out at the top.

Old Picker House Removed

After this first section of No. 2 mill was completed, the machinery from the old picker house was moved in and put in operation and then the old building was removed. The remaining 187 feet of the No. 1 mill was then completed. Fire doors were placed in the dividing wall of the two mills to permit trucking of materials from one mill to the other.

The next work undertaken on the extension of the mill buildings was started in 1920, when the No. 2 mill was completed and a portion of the No. 3 mill was built. The No. 2 mill was continued 72 feet wide for a distance of 100 feet, which carried it beyond the end of the proposed water power plant, at which point it was widened out to 113 feet, the same width as the No. 1 mill.

The 113 foot section was made 63 feet long, making the total length of the No. 2 mill 335 feet. On the west end of the completed No. 2 mill was built a tower the entire width of the building. The tower included stairs, a dust chimney, two toilets and an elevator, all of which were designed to serve both the No. 2 mill and No. 3 mill.

The No. 3 mill was started soon

Hydro-Electric Development

Measured in the light of improvements in the art of hydro-electric development in recent years, most of the existing small water powers and many larger ones are extremely inefficient. One of the greatest sources of fuel conservation exists in the redevelopment of water powers electrically and efficiently. Twenty to thirty per cent. more power can frequently be obtained from the same amount of water and to this must often be added the saving due to electrical transmission and the saving in wasted water on account of the more flexible use of the power.

Even where the large ponds are available the demand for power and the supply of water cannot always be synchronized where the use of the power is limited to directly connected machinery, to the same extent that it can when the power is generated electrically and used at will.

Three New Hydro-Electric Units at Dwight Power Station

At the time of the building of the No. 1 mill of the Dwight Manufacturing Co., the redevelopment of the water power was begun by installing a new water wheel unit in the basement of this mill. The water for this unit is drawn from the canal which runs through the property and discharges from the turbine into a covered tailrace to the river.

The installation consisted of one horizontal turbine with twin runners in a steel casing and is rated at 1200 H.P. under 30 foot net head. The turbine is direct connected to a horizontal generator of 640 kw. capacity, 2 phase, 60 cycle, 480 volts, excited from the steam plant. This installation was tied in electrically with the steam plant to operate the mill.

In 1919 it was decided to redevelop the balance of the water power controlled by the company, by concentrating this available power in a single plant to be built adjacent to the steam power plant, thereby putting all power generating equipment except the first 1200 H.P. hydro-electric unit under single supervision.

Plans were prepared for a new intake in the canal, three new penstocks 172 feet long, each 8 feet diameter at the intake, running under the No. 2 mill and reduced to 7 feet diameter in a 6 foot length near the power house. The power house is 42 feet wide and 74 feet long.

The intake in the canal was made of sufficient area so that the velocity of the water would be low and prevent trouble with anchor ice and debris. The gates for the penstocks are of timber and 8 feet square. At the east end of the intake there is a screen chamber from which is drawn the water for the condensers.

The substructure of the power house is of concrete with arched tailraces which run out under a driveway into the river. The superstructure has brick walls, steel sash, and a concrete roof on steel beams. On the south side of the power house there is a switch gallery on which all of the oil switches were mounted.

The power equipment installed in this station is as follows: Three vertical turbines of 650 h.p. capacity each under a head of 30 feet when running at 240 r.p.m.; the vertical generators are 600 kva., 3 phase, 60 cycles, 480 volts, and two driven exciters.

The switchboard consists of twenty-nine panels on which the entire electrical control of the mill is consolidated. Another part of the equipment consists of a 15 tons capacity, hand operated, traveling crane.

This is an excellent example of the modernizing of practically the entire plant, carried out over a period of years, with close cooperation between the owners and the engineer, Charles T. Main, Boston, Mass.

Farr Alpaca Builds Cotton Yarn Mill

A Six Story 75,000 Spindle Plant Under Construction at Holyoke, Mass., to Manufacture Highest Grade of Combed Yarns—Quality of Construction Insures Low Maintenance Cost and Gives Noteworthy Appearance to Building—Escalators with Hourly Capacity of 4,000 Persons

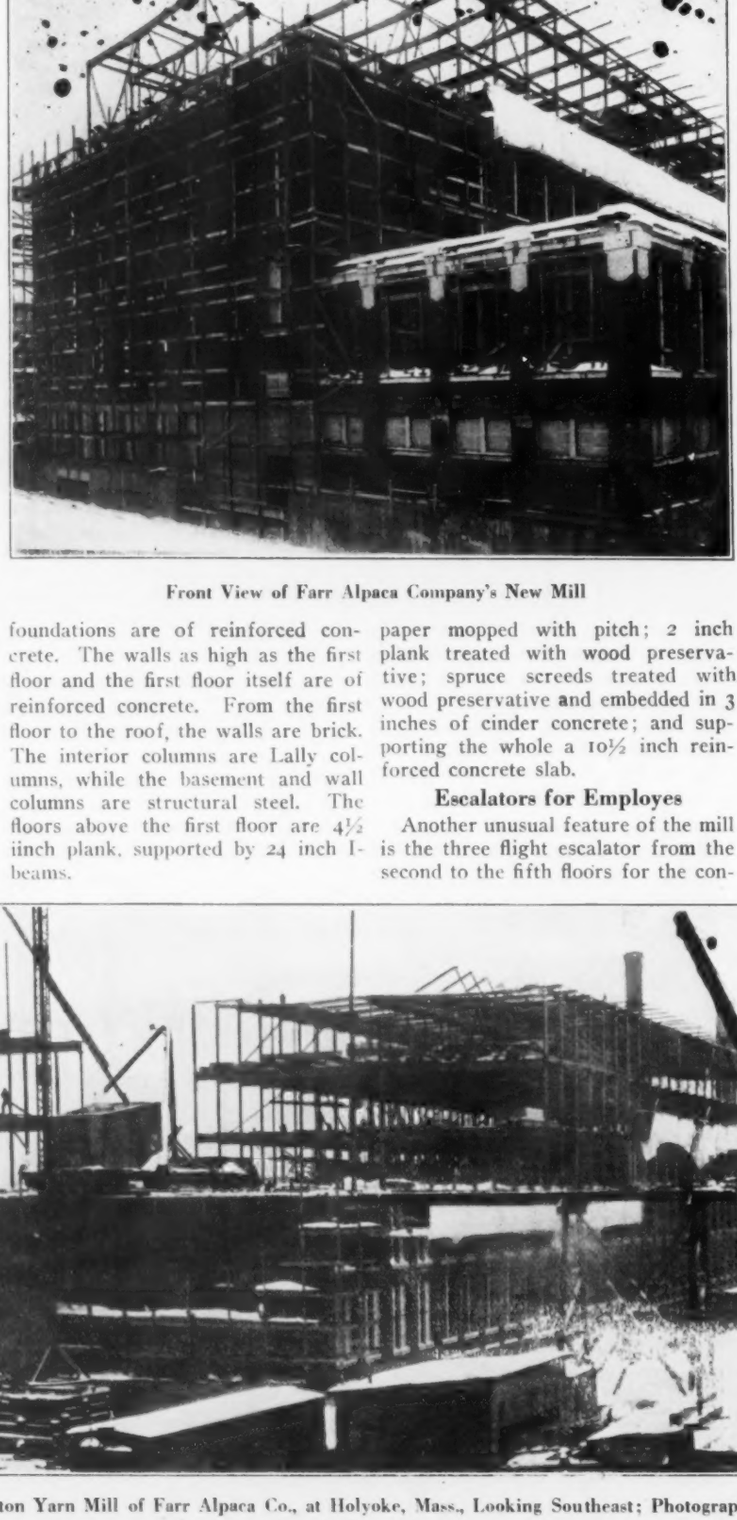
IN order to produce the highest grade of combed warp yarns used in their products, the Farr Alpaca Company, Holyoke, Mass., is adding a cotton mill unit which is two or three times as large as the usual new cotton mill of medium size. It will have a capacity of 75,000 spindles, but manufacturing will be started with 71,000 spindles as the initial equipment. The design and construction throughout is in accordance with the policy of a somewhat higher initial cost looking toward a saving in the end when maintenance becomes the prime consideration.

The large size of the new mill is evidenced by the fact that it occupies 5,076,655 cubic feet and provides 293,924 square feet of floor space. It has a length of 471 feet and a general width of 99 feet, this width being due to the restricted dimensions of the site, which is between the railroad and the canal. The front of the mill is wider, however, being 148 feet for a distance back of 184 feet. This additional width provides the office section and is carried up two stories. This additional width also allows all the cards, combers, drawing frames and slubbers to be put on the first floor.

The main section, which is the 99 foot width, has throughout the extreme length of the mill a height of 98 feet, or six stories including the basement. There are also three stair towers with air ducts. Two of these towers have elevator wells and the third a dust tower.

Construction Features

The following figures give an indication of the size of the mill: Excavation, 12,300 cubic yards; concrete, 5,700 cubic yards; structural steel, 932 tons; Lally columns, 572; brick, approximately 2,500,000; floor and roof plank, 1,333,900 feet. The building is supported by 1,055 concrete piles. The foundations are of reinforced concrete. The walls as high as the first floor and the first floor itself are of reinforced concrete. From the first floor to the roof, the walls are brick. The interior columns are Lally columns, while the basement and wall columns are structural steel. The floors above the first floor are 4½ iinch plank, supported by 24 inch I-beams.



Front View of Farr Alpaca Company's New Mill

One unusual feature of the mill is found in the first floor or card room floor. This is 16½ inches in thickness, made up as follows: ⅞ inch maple flooring; two thicknesses tar paper mopped with pitch; 2 inch plank treated with wood preservative; spruce screeds treated with wood preservative and embedded in 3 inches of cinder concrete; and supporting the whole a 10½ inch reinforced concrete slab.

Escalators for Employes

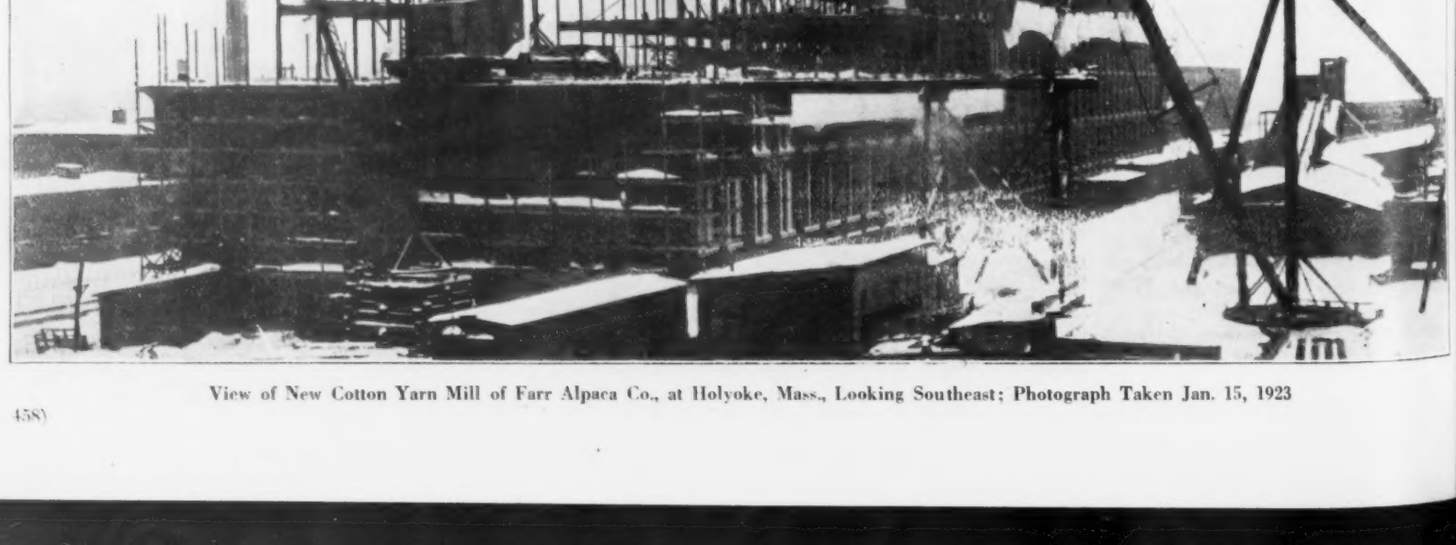
Another unusual feature of the mill is the three flight escalator from the second to the fifth floors for the convenience of the employes. In fact, the entire arrangement of the mill has been designed and carried out with convenience to the employes as one of the first prerequisites. The escalators are motor driven and operated as a unit from one control room. The capacity of each will be 4,000 persons per hour, the treads moving at a speed of 90 feet per minute. They are provided with moving handrails and special safety devices.

The stairways are furnished with bright white glazed tile wainscoating, the tile extending 4 feet up from the floor at the platforms and 3 feet up along the stairs. There is an enamel red glazed inset forming a one-half inch strip at the top of the wainscoting to match the one-half inch red strip at the top of the gray dado of the paint work in the mill. All stairways are cement. The office entrance is of square red tile laid in dark red mortar with a terrazo border and base. The stairs and platforms are terrazo. All the toilet rooms have a wainscoting similar to the stairways and buff granite vitrified tile for floors.

The lavatories are numerous and of the type "Romana" furnished by the Standard Sanitary Manufacturing Co. At each sink and lavatory is a drinking fountain supplied with cold water from an artesian well beneath the building. The water closets are vitreous china, known as "Titan", with natural oak high copper lined tanks, nickel plated brass flush pipes, and white celluloid seats.

Heating and Humidifying

For heating and humidifying, the Carrier system is installed. The equipment is placed in the basement



View of New Cotton Yarn Mill of Farr Alpaca Co., at Holyoke, Mass., Looking Southeast; Photograph Taken Jan. 15, 1923

supplying air to the various floors through a central riser and the distributing ducts leading from this riser. The air is returned from the mill through three vertical risers. These return risers deliver the air to the basement, which is used as a return air chamber.

Particular care toward insulation is carried out in the windows which are double glazed and in the roof which consists of the following: 3½-inch plank; two thicknesses roofing felt, dry; one thickness roofing felt, mopped with asphalt; 1 inch sheet cork laid in hot asphalt; one thickness sheathing paper; two thicknesses tarred felt; one coat pitch; three alternate coats of tarred felt and pitch; and a final coat of pitch and slag.

Construction of Sawtooth Roof

Especial attention has been accorded to the construction of the sawtooths, one of which extends the entire length of the mill on the main roof and the other the entire length of the two story section of the mill. These sawtooths are double glazed with sills of Michigan white pine. There are also skylights over each elevator well and the office.

A siding from the railroad extends along the west side of the mill. The handling of the cotton is facilitated by unloading it directly from the car into the basement.

The appearance of the mill from an architectural point of view is noteworthy. The walls up to the first floor are concrete. By the use of V-joints and an excellent finishing, it has been possible to obtain a very pleasing effect and a very close resemblance to cast stone such as might be found in unusually expensive construction. The window sills are cast stone. The cornice work is of ornamental cast stone with cartouches in every pilaster. The width of the mill, as mentioned previously, was dictated by the location between the railroad and the canal.

Machinery Equipment

The machinery equipment includes the following: Dobson & Barlow opening and picking; H & B American Machine Company cards, drawing and speeders; Nasmith combers; Fales & Jenks spinning frames; Universal No. 16 winders; and Saco-Lowell and Easton & Burnham warpers. The adoption of the Universal No. 16 winder instead of spooling is a somewhat new development which has proved very successful. Machinery will be electrically driven and all spinning frames and winders will have direct connected motors.

An interesting feature that has been developed in connection with this new mill is the conveying system for waste. Several openings are arranged along the entire length of the card room floor with a fireproof cover for each opening. The different kinds of card waste and comber waste are put down these openings to 12 inch galvanized pipe in which it is conveyed by fans direct to the waste bins in the basement. When sufficient material has accumulated to make a bale this waste is drawn into a 12 inch pipe that is sunk in the floor, having openings at each bin. The waste is drawn into these openings and fed by the fan directly to a condenser, then dropped into the baling press.

It will be noted from the description of the building construction that the first story is of reinforced concrete and the basement is flat slab mushroom construction. In this way the rooms are fireproof so that they can store cotton and have it easily accessible to the opening room which is in the basement. The cotton after it leaves the basement is drawn up two floors to a mixing room which will store a week's supply. It is then fed directly from this room through a metal chute directly into the hoppers at the breaker picker.

Machinery Painted Light Gray

It is of interest to note that the machinery in this mill will be painted light gray to aid light reflection and cleanliness. The dado on the walls and columns will also be gray with 1¼ inch dark red strip between the white and the gray.

R. W. Boys has joined the organization of the Farr Alpaca Company as superintendent of the Cotton Division, and many of the features of this imporatnt new mill are the result of his close cooperation with the other officials and S. M. Greene Co., Springfield, Mass., who are the engineers.

Expansion at Ware Shoals Mfg. Co.

Build New Steam Power Plant, Bleachery and Bag Factory—Electrical System of Mill Being Changed Over From 40 to 60 Cycles—Apartments and Cottages Built to House Additional Force of Employes—Improvements in Mill Village and General Construction

By *George Wrigley**

THE new construction for the Ware Shoals Manufacturing Company, at Ware Shoals, S. C., during the year 1922 includes the interesting features of a steam power plant, bleachery, bag factory, apartment houses and cottages.

The new steam power plant has a capacity of 2,000 kw. It is to be used as an auxiliary to the existing hydro-electric plant and will supply power during the dry seasons. The present electrical system operates at a frequency of 40 cycles. As this frequency is practically obsolete, it was decided to make the new power plant 60 cycles and install a frequency converter so that part or all of the power could be converted from 40 to 60 cycles. Operating on a gradual replacement program, the whole system of the mill will be changed over from 40 to 60 cycles. The present motors are about twenty years old and have, therefore, lived the greater part of their useful service.

New Power Plant

The power plant building consists of a boiler room 53 feet 2½ inches by 54 feet 8 inches, a turbine room 41 feet 4 inches by 54 feet 8 inches, and a switchboard room 10 feet 8 inches by 23 feet 6 inches. Under the entire plant is a basement with a story height of 15 feet. In the boiler room the distance from the boiler floor to the bottom of the roof trusses is 37 feet.

There are two 408 h.p. Babcock & Wilcox boilers installed at present. Provision is made for future extension by the placing of additional units. These boilers are built for a working pressure of 225 pounds, 100 degrees superheat. They are fitted with automatic feed water regulators and damper regulator. These boilers will furnish steam for power purposes and also for processes in the new bleachery.

Westinghouse multiple retort underfeed stokers are provided for the operation of the boilers. These stokers have a grate area of 69.8 square feet each, and will give 76 per cent combined efficiency of furnace and boiler. The warm air from the turbo-generator is fed to the furnaces by a fan having a capacity of 45,000 cubic feet of air per minute against 5½ inches pressure of water.

New Steam Power Plant of Ware Shoals Mfg. Co., Showing Construction Nearly Completed

Coal and Ash Handling

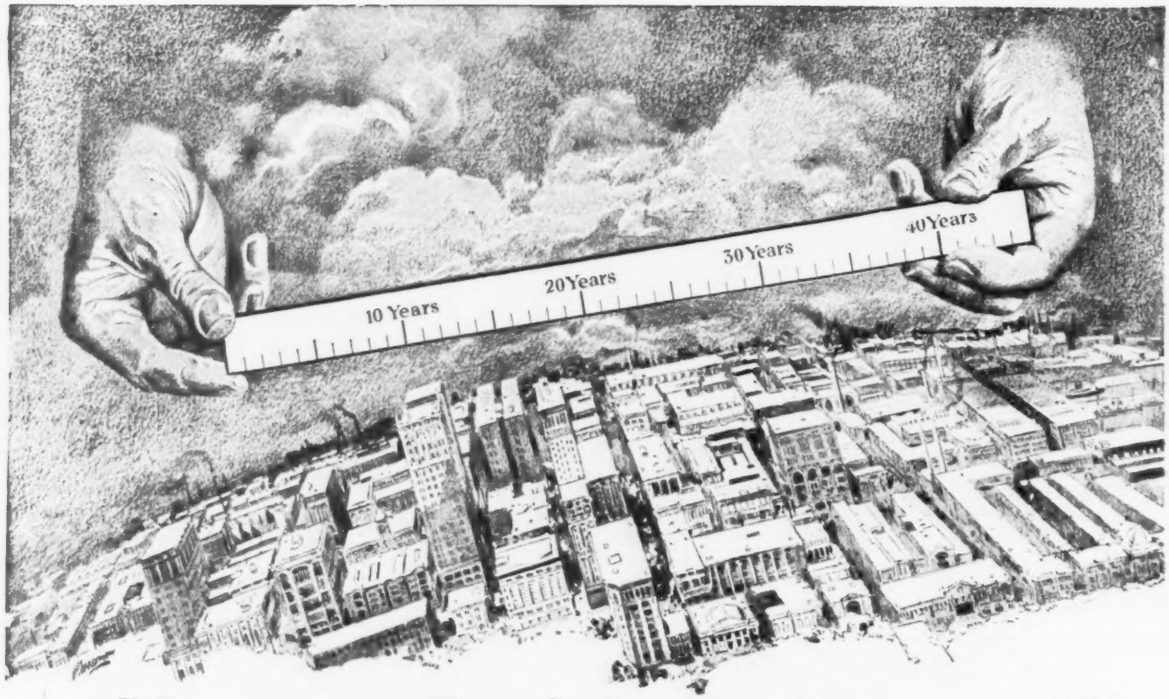
The coal handling apparatus, furnished by R. H. Beaumont Company, consists of a skip hoist which will raise the coal from the track bunkers to an overhead storage tank in the boiler room, from which a weighing larry will distribute it to the stoker hoppers. In the boiler room basement a simple track and car are provided to take care of ash removal from the specially designed ash hoppers furnished by the Allen-Baker-Dunbar Company.

The high pressure steam piping is simple and direct between the boilers and the turbine. This pipe and fittings are designed to withstand the temperature of the superheated steam, and were furnished and installed by the Grinnel Company. The steel valves were furnished by the Edwards Company and by the Chapman Company.

The steam turbine is of General Electric manufacture and has a rating of 2,000 kw. It is of the latest, high economy, 19-stage type, and will develop a kilowatt hour on 14.25 pounds of steam when operating at 200 pounds initial pressure, 100 degrees superheat and exhausting against 2½ inches absolute back pressure. The generator has a capacity of 2,500 kva. and is wound for 2,300 volts, 60 cycles, 3 phase, 80 per cent power factor.

The turbine exhausts to a C. H.

* J. E. Sirrine & Co., Engineers, Greenville, S. C.



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We will gladly send, on request to our nearest office, full information regarding these bonded roofs and copies of the Barrett Specifications.

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Barrett Specification Roofs *Bonded for 20 and 10 Years*

Wheeler surface condenser with 4,500 square feet of cooling surface and guaranteed to give 27½ inches of vacuum, with circulating water at 85 degrees Fahrenheit, when circulating 4,200 G.P.M. This condenser is equipped with two Rado-Jet air pumps for the removal of the non-condensable vapors. The generator is supplied with washed air drawn through a Sturtevant Company's air washer.

The water circulating pump, air washer pump and several of the other auxiliaries are motor driven, the heat balance being carefully designed to avoid waste of steam. Circulating water is drawn from the spray pond through a concrete intake fitted with suitable trash racks.

The output from the turbo-generator set is carried through the frequency converter and changed from 60 to 40 cycles. This set consists of two synchronous machines and has an output capacity of 2,000 kw. It can be used to change from 40 to 60 cycles or from 60 to 40 cycles at will.

Circulating water for the condenser is cooled in the spray pond, having 105 No. 12 bronze heads furnished by E. D. Badger & Sons Co. and designed to cool the water to 85 degrees Fahrenheit under normal conditions of temperature and humidity. The flue gases are carried from the boiler to a radial brick stack 160 feet high and 8 feet diameter.

The switchboard, consisting of generator, exciter, feeder panels, etc., is housed in a small separate room adjoining the turbine room. In connection with this board there is installed a starting compensator for use in starting the frequency converter and so arranged that it can be used on either the 40 cycle or 60 cycle end of this unit. The turbine room is fitted with a mechanically operated crane capable of handling the heaviest part of the apparatus.

The turbine foundations are of reinforced concrete beams and columns, designed to give maximum strength and also provide access to the exhaust connections and the condenser.

Bleachery and Bag Factory

The bleachery and bag factory will be placed in a two-story reinforced concrete building now under construction, the bleachery occupying the first floor and the bag factory the second floor.

This building is 272 feet long by 84 feet wide and the first floor has an extension 52 feet 6 inches long by 84 feet wide. Brick paneling is used to enhance the appearance of the building. A basement area under a part of the bleachery provides space for vats and gives good drainage for the several processes. The story height of the basement is 12 feet and of the main floors 15 feet.

The equipment of the bleachery is designed in ranges. The chemic room, gray room and the kier room are placed in the single story extension. The bag factory equipment includes the machinery for sewing, printing and inspection of the product.

Apartment Houses

For housing the additional force of operatives required for the new departments and the night shift the company has completed fifty units of apartment house construction. Each unit contains a basement, a first floor with back porch, kitchen, living room and hall, and the second floor of two bed-rooms, a bath and hall. The kitchen is 11 feet 6 inches by 9 feet 8 inches. The living rooms are 11 feet 6 inches by 14 feet, and the bedrooms are each 11 feet 6 inches by 14 feet.

These buildings rest on concrete footings with brick walls and piers built up to the under side of the joists. From these walls hollow-tile walls are carried up to the roof line and brick parapet walls project above the roof. The outside dimensions of one of these units is 19 feet 1 inch wide by 29 feet 10 inches long. The exterior finish is cement stucco and the interior finish is plaster. The flooring is B and B grade. For the roofing asphalt shingles and five-ply tar and gravel is used. Each unit is provided with a front porch and steps.

The contractor for the buildings is the Minter Homes Company, Greenville, S. C.

Plumbing in each unit consists of a bath tub, lavatory, sink and hot water tank for connection to the kitchen range. The plumbing contractor is L. L. Barr. The contractor for street work, sewer and water lines is the Fiske-Carter Construction Company. These units are assembled in two buildings of fourteen, one of twelve and one of ten units each.

In addition to these apartment houses separate cottages have been built in new sections of the village and new streets and sidewalks constructed to make all of these new houses accessible. The new general construction included a large swimming pool for the Y. M. C. A., a girls' dormitory and a graded school.

Plans, specifications and supervision for all this work were furnished by J. E. Sirrine & Company, engineers, of Greenville, S. C.

Plant of Proctor & Schwartz, Inc.

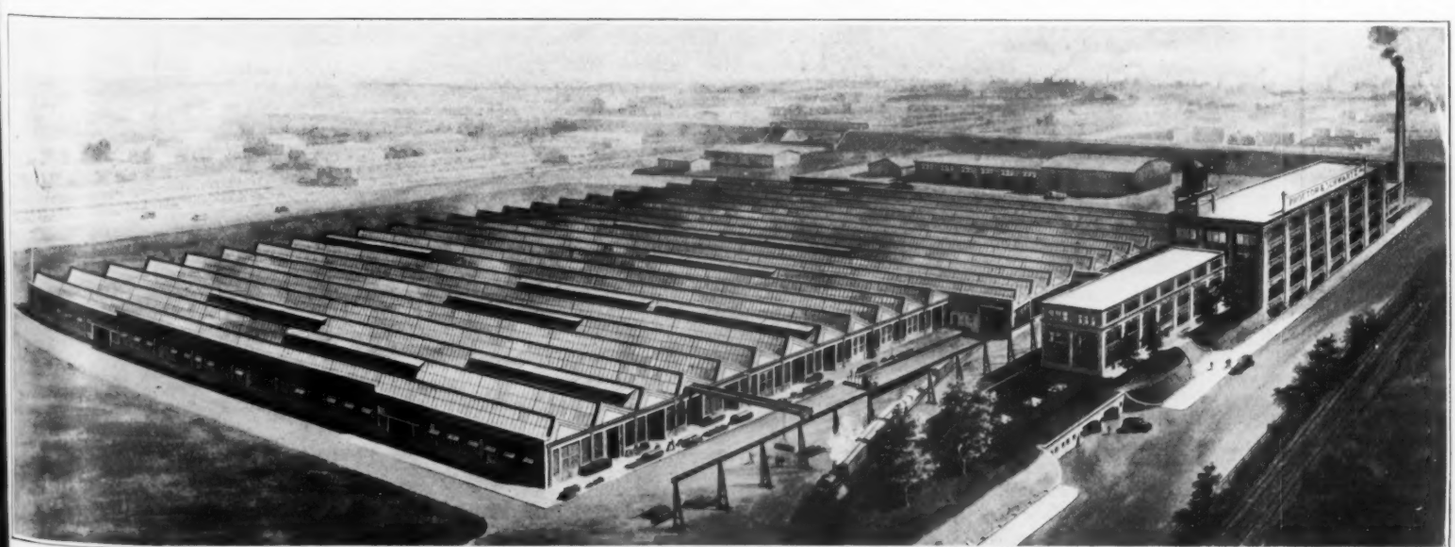
A Fine Example of Modern Machinery Production Methods—Recently Enlarged for the Production of the Smith-Furbush Machinery, Along with Proctor Dryers, Following the Merger of Smith & Furbush Machine Company and Proctor & Schwartz, Inc.

EARLY last summer TEXTILE WORLD announced plans for extensive additions to the plant of Proctor & Schwartz, Inc., at Tabor, Philadelphia, on the completion of which Smith & Furbush Machine Company, another old Philadelphia firm, would be consolidated with Proctor & Schwartz, Inc. The completion of these plans now finds the personnel of the two companies joined under the same roof into a single organization, to be known as Proctor & Schwartz, Inc., and equipped to produce both "Proctor" dryers and "Smith-Furbush" cards, garnetts, felting equipment, waste machinery, etc., on a larger scale than ever before.

Occupying a plot of eight and one-half acres at Seventh street and Tabor road, Philadelphia, the Proctor & Schwartz, Inc., plant represents the last word in modern factory construction, equipment and location. It consists of a main factory building of the most modern saw-tooth construction; a three-story administration building; a four-story auxiliary factory building; a one-story woodworking shop; a power house, and a garage; also a lumber shed and a yard for storing such raw materials as large castings.

The receiving and shipping facilities are admirable. The plant is located on the Philadelphia & Reading Railway, having its own siding, the tracks of which extend through the storage yard and into the main factory building. This latter feature permits the loading and unloading of cars indoors, thus avoiding the exposure of men and machinery to the weather. Supplementary to the railroad siding is a large bridge-crane.

Accepting an invitation to visit this plant the writer, on approaching the



Plant of Proctor & Schwartz, Inc., Philadelphia

Walls of Unbroken Daylight

DAYLIGHT is such an important element in James Lees & Co. Worsted Yarn Mill at Bridgeport, Pa. that the exterior columns were omitted to permit an unbroken line of steel windows. This new mill is constructed on the well known engineering principle of cantilever by The Ballinger Company, Engineers and Architects of Philadelphia and New York. 34,500 sq. ft. of Truscon Standard Steel Windows were furnished for this building.

Truscon daylight engineers don't just "sell" steel windows, they will help you in making the best layout for your mill, factory or office.

Truscon daylight experts are usually consulted on big problems of natural ventilation and daylighting, not only because they give complete engineering service but because they have the largest and most complete manufacturing facilities for steel windows.

There are types and designs of Truscon Steel Windows and mechanical operators for every type of building, from the plain factory to the highest class of school or office building.

Truscon engineers are at your service at all times to help you make your building a complete success. Back of them is an organization completely equipped to meet every building requirement.

TRUSCON STEEL COMPANY
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Warehouses, Sales and Engineering Offices in Principal Cities

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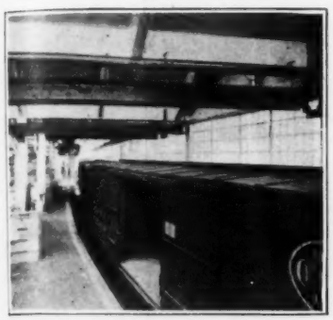
administration building, made mental note of the splendid location and layout, as well as the pleasant and healthful surroundings. The administration building is three stories in height, of brick and concrete construction, suggesting the Colonial



Indoor Shipping Platform with Bridge-Crane for Heavy Materials

style of architecture, the beauty of which is greatly enhanced by high terraced lawns, flower beds and trees.

Passing through the trim white doorway the impression received is that here is a substantial organization, one that is at once young and old, modern and mature, possessing that rare progressiveness finely tempered with experience. A glimpse of the executive offices revealed a simplicity of taste in furnishings which exactly suited the Colonial effect of brick fireplaces and white trimmings.

Research and Development

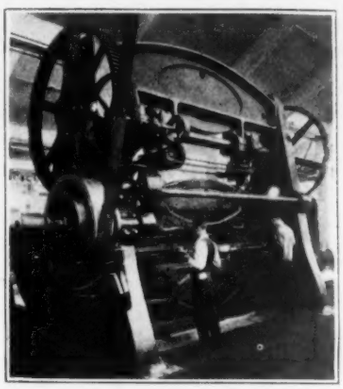
The trip through the engineering and manufacturing departments was one of absorbing interest. It seemed appropriate that the guide should first take the writer to the research and development department located on the fourth floor of the four-story auxiliary factory building. Here, in a glass enclosed office and drawing room, are the engineers who conceive and develop new machinery. The rest of this floor is given over to a shop and laboratory, where the writer saw several ingenious new machines and machine parts under development. These included both drying machines and textile manufacturing machines.

Columns could be written about this one department of Proctor & Schwartz, Inc., especially about the drying test laboratory and its facilities for investigating the drying of all kinds of industrial materials. However, we must pass on through the other departments.

The entire third floor of this four-story building is given over to the fabrication of "Proctor" automatic boarding, drying and stripping machines for hosiery; the second floor to an office, a recreation room and incidental stores room; the first floor to one of the woodworking shops; and the basement to a pipe shop.

Main Factory Building

The next building visited was the main shop, a one-story reinforced concrete building of the most modern saw-tooth construction, 575 feet by 240 feet. On entering this building one is impressed at once by its vastness and the perfection of its lighting. Daylight floods through thousands of window panes in the twenty-three great sawteeth forming the roof and the steel sash of the side walls. Swirring belts drive long lines of lathes, planers, presses and milling machines. On giant lathes and grinders the cylinders for "Smith-Furbush" carding machines were being turned and ground to precise di-



Huge Shear for Cutting Sheets of Metal for Proctor Dryer Housings

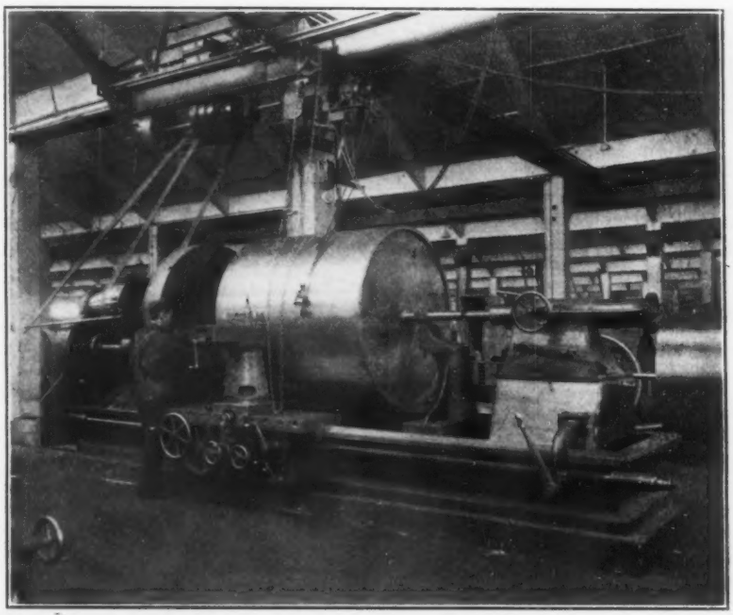
mensions. Nearby, the big sheets of metal that go to make the housing of "Proctor" dryers were being cut by a huge shear.

In other parts of the building, drying machines, carding machines and garnetting machines were being assembled. At one place a steel dryer more than a hundred feet long, fifteen feet wide and twelve feet high was being assembled. In another location a long line of cards and felting machines were being set up.

Planning and Control

In the center of this busy scene is found the planning department headquarters, from which is controlled every detail of production. A system of pneumatic carrier-tubes connects this room with the engineering department and the production manager; through these tubes are received the orders. An ingenious annunciator system gives instantaneous communication between the planning room and every machine in the shop. By this system a great deal of time is saved. For instance, at each machine there is a push-button; when the operator has a piece of work nearly finished, he pushes that button and a light flashes on the annunciator board in the planning room. Immediately the next job for that machine is decided upon and the material is moved to the machine by the time the operator is ready to start the work.

The flow of production throughout the plant is toward the railroad siding before mentioned. Here, inside the plant, freight cars are held in readiness and no time is lost in shipping.



Turning Smith & Furbush Card Cylinders Preparatory to Grinding to Precise Dimensions

As is to be expected in a modern plant of this sort, every provision is made for agreeable working conditions. Several comfort rooms are located at convenient points throughout the plant. A large room at one end is equipped with clothes lockers, wash basins and showers; adjoining this is a cafeteria lunch room.

One has only to visit this plant to become convinced that its products are efficiently and economically produced, as well as to obtain an insight into the reasons why the business of Proctor & Schwartz, Inc., has expanded to the vast proportions it has reached from a humble start.

Interior View, Main Shop, Proctor & Schwartz, Inc.

Hosiery Mill and Throwing Plant

Real Silk Mills Humidify Throwing and Knitting—Conveyor System—New Boiler Plant

By *John R. Potcat*

IN May, 1922, construction was started on an additional plant for the Real Silk Hosiery Mills, which has more than doubled production. The business which necessitates this expansion has been built up on unique production and merchandising plans. Production is concentrated on one style of hosiery and merchandising is direct to the consumer through district agents.

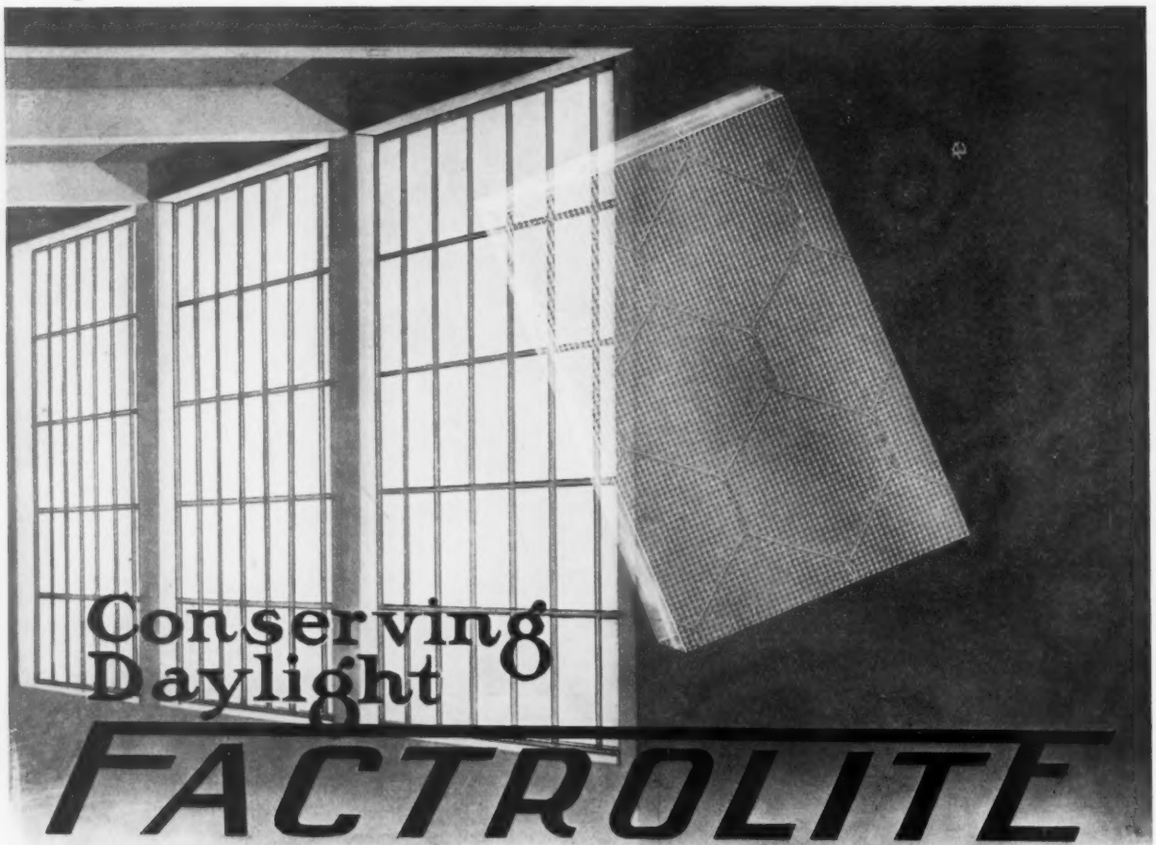
The production plan lends itself most readily to quantity production through standardization, and this is what the new plant has been designed for. In order more easily to control quality a throwing department was organized and occupies the fourth floor of the new building. Here the raw silk, delivered to the department by Lamson conveyors, is soaked, wound, twisted and coned preparatory to the knitting operation.

Conveyor Installation

Delivery of silk and cotton cones to the knitting department on the third floor is also a conveyor operation and receipt is established on a small mezzanine from which supplies are dispatched to any group of knitting machines by conveyor.

The second floor is occupied with

* Lockwood, Greene & Co., Engineers, Chicago, Ill.



On the sunny side of a big "daylighted" factory, on a bright day, is ordinarily a blinding place to work. Whether the men place temporary sun shades to relieve the eyestrain, or put on dark glasses, shop production slackens—the work drags—there is economic waste.

Mississippi Wire Glass Company

220 Fifth Avenue
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St. Louis, Mo.

The scientific way to correct this trouble is to forestall it by specifying "FACTROLITE" for glass in sidewalls, monitors and skylights.

FACTROLITE diffuses the sun's rays so that you can look Old Sol right in the eye behind a "FACTROLITED" sash.

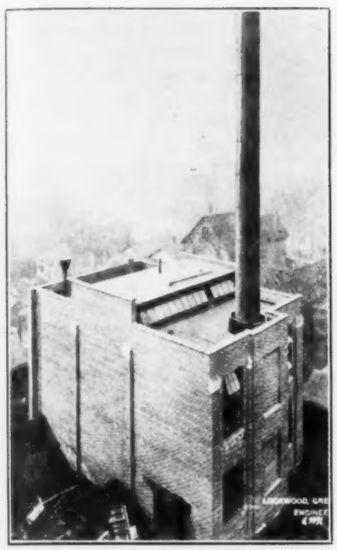
Then, too, FACTROLITE checks *reflection* from the outer side of the panes. It gathers in rays from a wider angle of incidence than ordinary glass and refracts them into a diffused, shadowless daylight indoors.

"FACTROLITE" is the result of years of research work. It is offered to the engineering public as the latest development for *daylighting* factories and offices. Made in both plain and wire glass. A free sample sent to engineers. *Mark and mail the coupon.*

Mississippi Wire Glass Company,
220 Fifth Avenue, New York.
Gentlemen:
Send me a Catalog and Factrolite Paper Weight as advertised in Textile World. It is understood this does not obligate me in any way.
Name .....
Address .....

looping, inspecting and mending, and the material, received from the knitting floor by conveyor, which deposits the stock at a central distributing point, is here again dispatched to various operations and returned to the central stock bins.

The first floor has the general and private offices, first aid, employment, a central coat room for all employes,



New Boiler House of Real Silk Hosiery Mills

a laboratory for testing and a dye laboratory, and the raw stock room where batches are made up for delivery to the dye house in the old building. The dyeing, finishing and shipping operations are carried out in the old building, which also provides a cafeteria and recreation room and a print shop where all the labels and forms are printed. Power is supplied by motor drive throughout.

Mill Construction

The new building, 190 by 100 feet, four stories, 15 feet 6 inches floor to floor, is of mill construction, faced on two sides with face brick and trimmed with limestone. Steel sash with Factrolite provides superior light on all floors and the white interior still further aids in light utilization. Maple floors are provided.

The roof is of five ply, tar and gravel construction and to prevent condensation on the underside of planking, 1 inch of cork has been laid, being mopped and tied into the roof with hot asphalt. Sprinklers throughout are served by a 30,000-gallon steel tank mounted on the northwest corner of the building. Heating is by direct radiation under the windows served by a vacuum heating system.

Sprinkler system was installed by the Indiana Automatic Sprinkler Co. Steel racks for storage were supplied by the Lyon Metallic Mfg. Co. and hardware was supplied by the Vonnegut Hardware Co.

Humidification for Knitting

Humidification is carried in both the silk throwing and knitting floors by Bahnson heads, this being one of the first knitting rooms to be thus equipped. Special provision has been made in the construction to conduct the condensation, which collects on the sash, outside of the building.

Lighting of the manufacturing operations is all by Cooper Hewitt lamps spaced specially for the various operations. Since this plant operates nineteen hours per day, proper lighting is paramount and after a test in the old plant it was decided to install the mercury vapor lamps.

A complete drinking water system has been installed served by an Audiffren refrigerating machine which keeps the water between 45 and 50 degree F. Cool water at any fountain is insured by pump circulation.

In the toilets and soaking room and all places, except the ground floor, where water is likely to be splashed, asphalt mastic has been used to waterproof. This was laid on paper on the 3-inch floor plank and brought to a smooth finish slightly above the finished maple floor, giving a curb for drainage purposes.

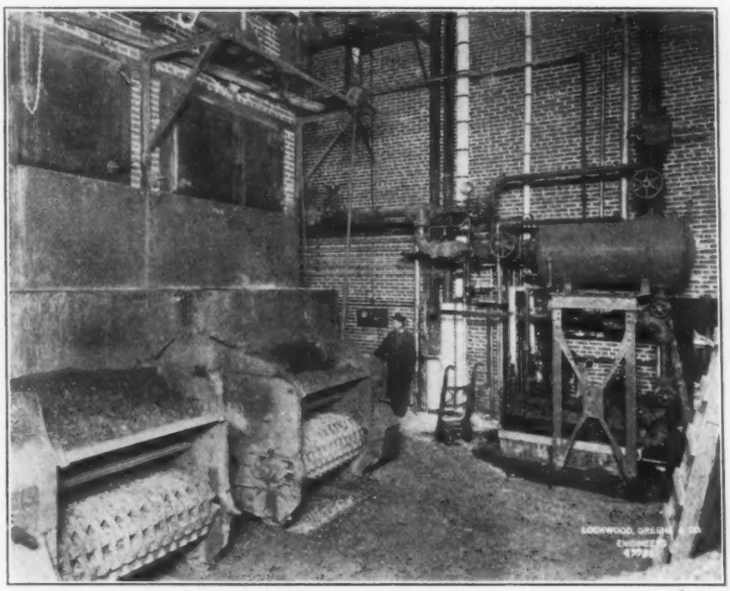
Other features include plastering and walnut finish in the main office, plastering being tinted a buff color, and the use of Trojan electric lighting units in the offices. The main entrance was given special consideration and brass stair rail, red quarry tile floor with gray joints and color scheme as in the general offices, was carried out here. A bridge at the second floor connects the new with the old building.

The Boiler Plant

The construction of the new building and the greater demand for steam in the dye house necessitated a new boiler house to carry the load formerly carried by a pair of H. R. T. boilers in the old building. Accordingly a plant, destined to become part of a larger power plant later, was built and equipped just west of the new building. This plant is connected by tunnels with both the old and new buildings and steam, hot and cold, raw and soft water are distributed from the boiler plant in the tunnels.

The plant itself is equipped with two J. F. Davis & Sons Co., 152-H. P. water tube boilers set with 10 feet under the front header and served by Laclede Christy Clay Products Co.'s chain grate stokers. The stack is a self-supporting, unlined steel stack 150 feet high, designed for 200 per cent. of rating, as is also the other equipment.

Various other items of equipment are as follows: Diamond soot blowers, Worthington feed pumps, Hoppes open feed water heater; Whitlock hot water heater; Waynite water softener, and American electric circulating pumps. The circulating pumps are for boosting the pressure on the city supply and they are cross connected for emergency.



Two 150 H.P. Water Tube Boilers with Stokers in New Boiler House

A tunnel in the boiler house beneath the firing floor contains a Green Engineering Co.'s steam jet ash conveyor and two vacuum pumps, one on the heating system in each building. A cast iron hopper suspended from the roof trusses receives the ashes from the conveyor and shoots them outside to a waiting truck.

The steam demand is fluctuating and thus 125 pounds pressure is kept in the boilers while 80 pounds is the highest pressure utilized at present. Ultimately the plant will be enlarged and generating equipment installed, at which time the higher pressure will be maintained at the throttle of the prime mover. The work from start to finish was handled by Lockwood, Greene & Co., engineers, of Chicago and Boston.

Third Floor, Knitting Department, Showing Mezzanine Dispatching Station and Humidifiers

Fourth Floor, Silk Throwing; Not Fully Equipped

(Above)
U. S. Navy Fleet
Supply Base
Navy Department
Architects
(Center)
Sears Roebuck Co.
Geo. C. Nimmons Co.
Architects
(Below)
Noyes-Buick Bldg.
A. S. Bewditch
Architect

Performance and endurance are known to their users~

THE notable performance of Peelle Doors in the above buildings is typical of all Peelle installations. Peelle Freight Elevator Doors are efficient and enduring because proper designing and sturdy construction make them so.

The Peelle self-sealing, pass-type door meets the rigid requirements of the Underwriters' Laboratories. Like other Peelle Doors, the pass-type door is counterbalanced, truckable and operates vertically, permitting full clearance for speedy loading and unloading. Peelle Pass-type Doors lessen building insurance rates and save the tax which is levied on pass-type doors that are not Underwriter's labeled.

Let us help you on your next door problem. A copy of "Elevator Door Efficiency" will be sent gratis upon request. It describes Peelle Doors for every purpose.

Partial List of Peelle Door Users

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THE PEELLE COMPANY • Brooklyn • New York
BOSTON - CLEVELAND - CHICAGO - PHILADELPHIA - AND 12 OTHER CITIES

PEELLE Freight Elevator DOORS

Counterbalanced-Truckable

Combing Mill for Abbot Worsted Co.

Brick Mill, 243 by 88 Feet, Erected for Wool Sorting, Picking, Carding and Preparing—Partial Reorganization of Machinery in Other Departments Gives Additional Space for Drawing, Twisting and Spinning —Humidifying System on Two Floors—Air Cleaning

THE ABBOT WORSTED COMPANY is located at Forge Village, Mass., which forms part of the town of Westford. It is on the Stony Brook Branch of the Boston & Maine Railroad, which affords excellent railroad facilities for both receiving the raw stock and shipment of the finished products.

The plant is engaged in the manufacture of worsted carpet and clothing yarns with a complete scouring and combing equipment of modern design. It is well located with reference to good water supply for both power and scouring purposes.

The growth of the plant has been very steady over a number of years from a comparatively small beginning to its present dimensions. Additions of a substantial size have been made from time to time and the machinery reorganized to meet the new conditions. All the new buildings erected have been of first class mill construction and have been planned and organized with a view to the future growth.

Plant Equipment Reorganized

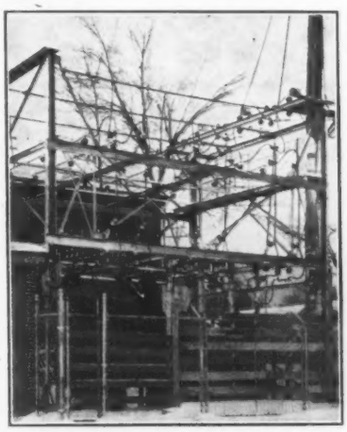
In 1921 the plant again outgrew its facilities and plans were prepared for a building, to be connected to one of the existing buildings, and to be known as the combing building. The plans contemplated a partial reorganization of machinery which called for removing the wool sorting, picking, carding, preparing and combing from various parts of the old plant in order to provide additional space for drawing, twisting and spinning; the new building being designed to place the wool sorting and picking on the top or third floor, the carding on the second floor, and the preparing and combing on the first floor.

This building, as erected, is 243 feet long by 88 feet wide, three stories high with a monitor roof. The construction consists of brick walls, steel floor beams, plank floors and roof, and steel sash from the Detroit Steel Products Co. There are stair towers at opposite ends of the building, also ample sanitary toilet facilities. The building is excellently lighted having an unusually large percentage of exterior wall surface in glass. Considering the growth in the past it was decided to make one end wall temporary, built of brick so that the material might be used again, or in case the occupancy were of a widely different character, it could then be used as a fire wall.

Due to the fact that the wool sorting was placed on the top floor, it was deemed advisable to have a monitor in the center bay running practically the full length of the building, which affords excellent lighting and allows of additional sorting tables in the center of the building.

Wool Blowing System

A wool blowing and dust collecting system in connection with the burr pickers was installed. The wool blowing system of piping was arranged to permit an auxiliary picker to discharge into any one line from the other pickers. This allows for shut downs for repairs to the other pickers without loss in production. Each picker is piped to a large steel plate dust exhauster and dust house. The floor of the dust house is built above the grade so that a team may drive under and permit of the removal of dust through trap doors in the floor.



Incoming Power Lines and Transformers

The freight elevator was placed so that it could be used for both the new and present building, to which the new building is connected. This elevator is direct connected, electric driven.

Owing to the fact that the present power equipment was not of large enough capacity, it was necessary to purchase additional power from the Lowell Electric Light Co. This was accomplished by installing a transformer sub-station in the yard. Power is supplied from the transformer to a switch house and then distributed by separate feeders to the mill. All power and lighting wiring is open on the ceiling, with conduit wiring for all taps to the motors and for all risers.

The motors are hung from the ceiling and arranged to drive the machinery in groups. Power is transformed from 575 volts to single phase, 3 wire, 115-230 volts, for lighting the mill. All lights are controlled in groups by switches in cabinets located on the wall. Lighting for the most part is general with some individual, using modern steel reflectors.

Heating and Humidifying

The heating is a vacuum system of steam heating with overhead coils supplied with high and low pressure steam. The combs are supplied with both high and low pressure steam run in trenches under the floor. The returns from heating system and combs are pumped back to a closed tank to be used for the wool scouring process.

The fire protection consists of a wet system of automatic sprinklers with the necessary outside underground protection. The two lower floors are supplied with a humidifying system of the turbo type with a complete air cleaning system. The air compressor is motor driven and of ample size to permit of additional stations. Charles T. Main, engineer, Boston, is in charge of this work.

New Combing Mill of Abbot Worsted Company at Forge Village, Mass.

KREOLITE

Outlast the Factory

Big Business
Is Built On
Kreolite Floors

Big Business is Built on Kreolite Floors

As the soil is the producing part of the farm, so the floor is the producing surface of every factory. The textile industry with its varied requirements has a number of floor problems to solve. Why not let Kreolite factory engineers discuss your problems with you? Our engineering department is at your service at your convenience without any obligation on your part. Kreolite floors can be laid without interfering with production. Worn floors can be made water-tight and wear-tight with Kreolite blocks.

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Kreolite Redwood Floors are particularly adaptable to the textile industries because of their smoothness and cleanliness. All lint, thread and materials can be removed from the floor without being damaged.

Kreolite Redwood Floors are manufactured from high grade, select, properly conditioned California Redwood. This wonder wood, coupled with the trade name "KREOLITE," guarantees satisfactory floors where everlasting service and pleasing appearance are important. Write for specifications and literature.

The Jennison-Wright Company, Toledo, Ohio
Branches in All Large Cities

FLOORS

WOOD BLOCK

New Plant for Goodall Worsted Company

Manufacturers of Palm Beach Cloth Build a Large Combing and Spinning Mill—Unusual Arrangement, Giving Two Main Units Above the First Floor, Provides Maximum Daylight and an Effective Layout for Economical Handling of Materials—Sawtooth Skylight on Combing Room

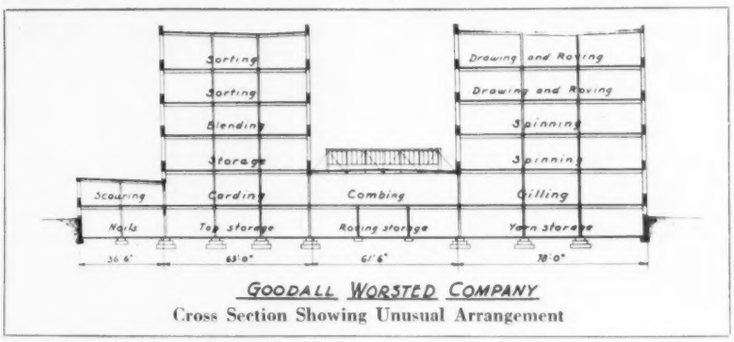
By *S. B. Lincoln**

THE new plant which the Goodall Worsted Company is erecting at Sanford, Maine, is rapidly approaching completion, and will form a large addition to these mills. The Goodall Worsted Company developed and is the sole manufacturer of the widely known Palm Beach cloth. A part of the space provided by the new building replaces some older buildings which have been removed, and the balance of the space will represent additional manufacturing capacity.

The location of the new building is at the main plant of the company in Sanford, at which point are located general offices, the combing and spinning departments and the finishing departments. The weaving operations of the company are carried on in a number of scattered plants in the vicinity of Sanford, which receive their yarn from the main plant and send cloth back there for finishing.

The new building will take care of all storage, sorting, blending, scouring, carding, combing, drawing and roving, and a large amount of the spinning although some of the yarn will continue to be made in some of the other buildings at the plant.

The arrangement of the new building is somewhat unusual and very ingenious and effective. The general scheme is shown by the cross section printed herewith. It will be seen by reference to this illustration that the building really consists of two main units above the first floor, one being used for sorting, blending and storage, and the other for gilling, drawing and spinning.



GOODALL WORSTED COMPANY
Cross Section Showing Unusual Arrangement

A common basement and first story serves and connects these two separate units in the best manner. On the first floor the scouring is located in a one-story wing running the full length of the plant and feeding directly into the carding department, which is on the first floor immediately below the storage space. From the carding department the work feeds into the combing department, which is located in the central space between the two 5-story wings.

Combing Room Without Columns

The combing room proper will be approximately 60 feet wide by 240 feet long, entirely without columns, being carried by roof trusses across this space, and the whole roof being covered with sawtooth skylights facing north, this giving the entire combing room the best daylight possible and equal to that supplied in the best weave rooms.

From the combing department work passes into the gilling department, also on the first floor level, and immediately below the drawing, roving and spinning departments, which are located on the floors above. The entire basement under both units is utilized for the storage of noils, tops, roving and filling yarns.

The total width of the new building in the basement and first story is approximately 294 feet, and the length of the building approximately 240 feet. The storage and sorting wing is 63 feet wide, and the spinning mill wing is 78 feet wide.

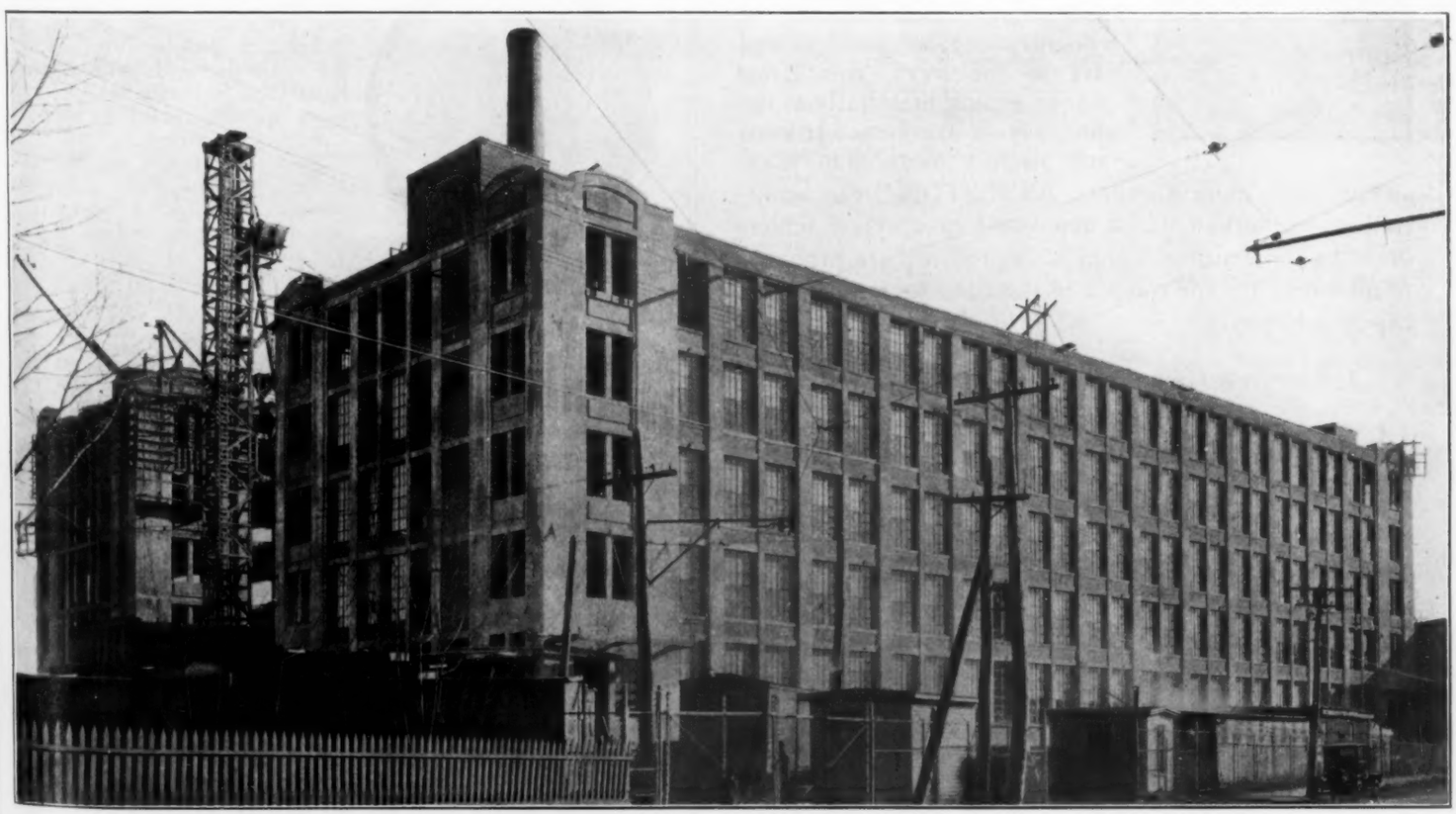
The entire building is of skeleton steel construction, interior columns being fireproofed with concrete. Exterior wall columns are completely encased with concrete, which is also used for window lintels. This combination with brick panels makes a most effective exterior treatment. Steel sash is from the Detroit Steel Products Co.

Adds 300,000 Square Feet

The entire first floor is reinforced concrete construction with wood wearing surface, providing a most substantial support for wool scouring, cards and combs. All floors above the first are of heavy laminated construction, covered with an intermediate floor and maple wearing surface. The whole structure will add approximately 300,000 square feet of floor space to the plant.

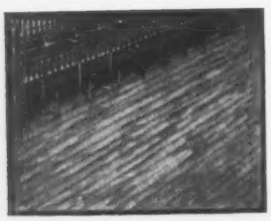
The new building is connected with the power plant by a tunnel which will carry all piping and wiring to the new building. The spinning mill wing is connected by a bridge at one of the

* Lockwood, Greene & Co., Engineers, Boston, Mass.



New Combing and Spinning Mill of Goodall Worsted Co., Sanford, Maine

What is the BEST Flooring for Textile Mills?

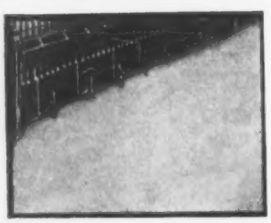


WOOD

While beautiful in appearance when first laid, wood soon wears out and must be replaced. In addition, it is inflammable, unsanitary and NOT cheap.

CONCRETE

The cheapest of all flooring, concrete is unsatisfactory because of its non-resiliency. It is very tiring to workers and furthermore is subject to "dusting."



ASBESTONE

This composition flooring is hygienic, fireproof, resilient and easy to the tread, this latter quality adding materially to the efficiency of workers. It costs only slightly more than wood and is much more durable. ASBESTONE can be installed over either old or new wood or concrete underfloors by cement finishers, or if desired, we are prepared to submit prices for completed installations made by our expert mechanics.

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FRANKLYN R. MULLER & CO.
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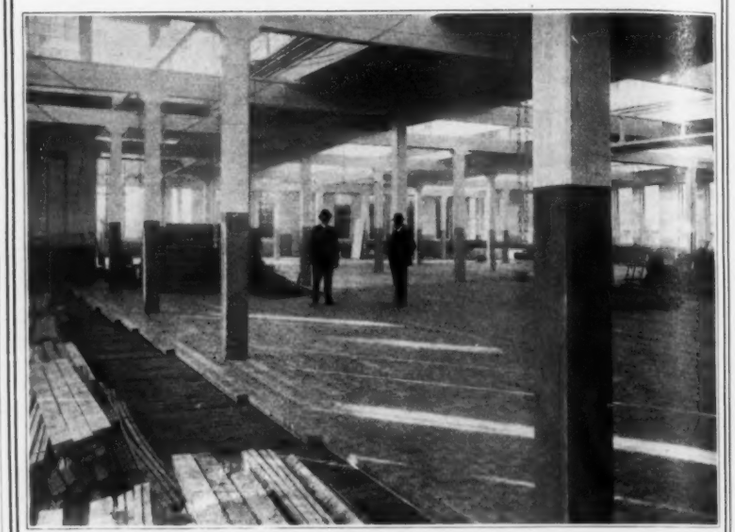
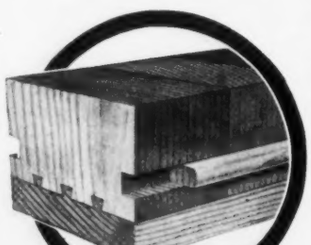
ASBESTONE
~The Ideal Flooring for Textile Mills

A heavy service Flooring of lasting Smoothness



In the above illustration, 22,000 sq. ft. of Bloxonend flooring is being laid over a plank subfloor in the plant of the Silk Finishing Co., of America, New York. Notice the smoothness—the brightness—the compactness of the finished floor!

And a Bloxonend floor stays smooth always under the most grilling service. It does not splinter; it does not become slippery. The selected Southern pine blocks on end which form its surface, come to the job dovetailed onto base boards 8 ft. long. Only the end grain is exposed to wear. When laid, these built-up strips are connected with splines and nails. No individual blocks to work up from their base under changing conditions.



Bloxonend sections measure 2-9/16 in. thick, 3½ in face, lengths averaging 7½ ft.

Bloxonend is also rapidly installed over new or old concrete floors. Embedded sleepers, wood subfloor or nailing strips are not necessary. And once laid, Bloxonend ends your floor troubles for all times.

Write nearest office today for a copy of Booklet "R." It contains detailed information regarding this bright, clean, end grain flooring.

Carter Bloxonend Flooring Co.

Kansas City: R. A. Long Building
Chicago: 332 South Michigan Ave.
New York: 501 Fifth Ave.
Cleveland: 1900 Euclid Ave. Boston: 312 Broad Exchange

BLOXONEND
Lays Smooth—Stays Smooth

upper floor levels with the spinning room portion of the balance of the plant. The basement storage space is also connected by a tunnel with basement of present manufacturing buildings so that the whole structure ties in most effectively with the present plants.

There are generous railroad and trucking facilities, with shipping and receiving platform extending the entire length of one end, or 240 feet.

All machinery in the new plant will be motor driven, using individual motors on spinning frames; most of the other machinery being driven in groups.

The general contractor for the building is the Wm. M. Bailey Co. of Boston. The plant was designed and construction is being supervised by Lockwood, Greene & Co., engineers, Boston.

Brandon Mills Duck Plant

Equipped to Manufacture Goods from 12 Inches to 192 Inches in Width

THE main building of the new duck plant built by the Brandon Mills at Greenville, S. C., consists of a reinforced concrete structure 271 feet long by 132 feet wide. The first floor is laid on tar concrete and the second floor on a 9-inch concrete slab. Story height of the first floor is 15 feet 1½ inches, and the top floor 15 feet 6 inches to the lowest point of the roof timbers. The bays are 21 feet 4 inches and there are two divisions 27 feet 6 inches wide and three divisions 25 feet 8 inches wide. The first-floor ceiling is of flat slab construction, resting on 22-inch diameter mushroom columns. Cast iron columns 7 inches in diameter are used to support the roof. The stair tower at the end of the mill gives access to the second floor. A wire shaft is contained in a section of the toilet tower and in it all circuits are run from floor to floor.

Brandon Mills Duck Plant, Greenville, S. C.

The eastern end of the building is arranged so that it can be readily extended, the space between columns now being filled with a curtain wall and sash.

In the power transmission system electric drive is used throughout with small group driving motors and individual motors. The latter are used on pickers, twisters and some of the looms. Universal-type four-frame motors are used for driving the spinning frames. Moderate size motors are used for driving cards, roving and some of the looms through comparatively small sections of shaft. In these drives a motor is used for driving each line of shaft through a silent chain drive.

Loom 208 Inches Wide

The machinery equipment includes 5,712 ring spindles for spinning, 1,324 twister spindles and 46 looms, varying in size from 32 to 208 inches. The necessary pickers, cards, roving and other preparatory machinery are also installed in this plant.

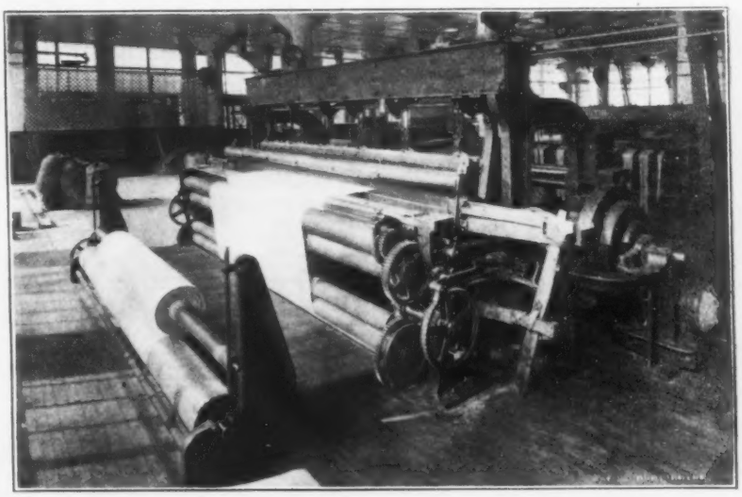
The smaller looms are driven by shafting and belting, a motor being provided for each line of shafting. The three largest looms, notably the 208-inch wide loom, are driven by individual motors.

Card Room in Brandon Mills Duck Plant, Motor Driving Each Line of Shaft Through Silent Chain Drive

The mill is equipped for the manufacture of duck ranging from No. 12 to 12/0 in widths of 12 to 192 inches, and weights of 7 ounces to 30 ounces per standard yard of 22-inch width. The product is used as paper mill felts, sail duck, hose and belt duck, canvas duck and conveyor belting duck. The yarns range in sizes from 7s to 13s, twisted from 3 to 16 ply, depending on the kind of duck that is to be woven.

Looms were furnished by Crompton & Knowles; the cards, twister frames and spinning frames by the Saco-Lowell Shops. Fiske-Carter Construction Company were the general contractors for the building. Walker Electric and Plumbing Company of Atlanta were the contractors for the electrical installation, and Bahnson Company furnished the air conditioning system. The electrical apparatus was furnished by the General Electric Company.

J. E. Sirrine & Company, engineers, Greenville, S. C., furnished plans and specifications for the entire plant and also supervised construction of the building.



Duck Loom, 208 Inches Wide, Showing Individual Motor Drive; Brandon Mills Duck Plant

James Lees & Sons Company

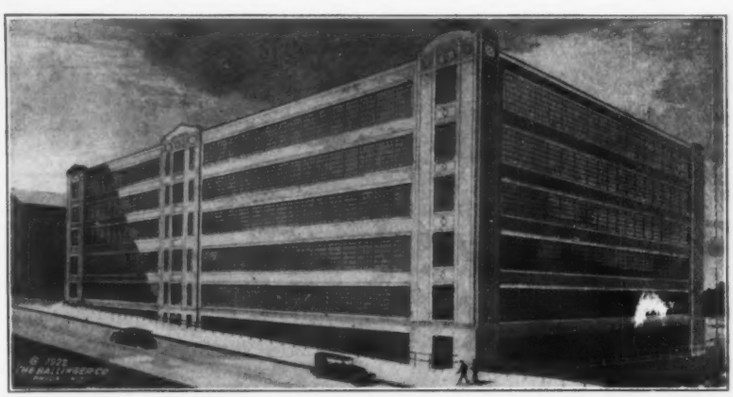
New Features in Mill Construction Employed to Give Daylight Building

ONE of the prime requisites for the production of first quality work under economical conditions is that the rooms in which the work is performed shall be provided with ample daylight. This result is insured by the new features in industrial building construction which have been evolved by The Ballinger Company, architects and engineers, of Philadelphia and New York, and embodied in the new worsted mill for James Lees & Sons Company at Bridgeport, Pa.

The new building which is an addition to the present plant is five stories and basement in height, 121 feet wide and 253 feet long, with a total floor area of about 180,000 square feet, and will be used for the manufacture of worsted yarns. It is of reinforced concrete flat slab construction, the top wearing surface of the floor being of maple. The exterior walls are of brick with terra cotta ornament.

Unbroken Line of Light

The unique feature in the construction consists of the omission of exterior wall columns, permitting if desired an unbroken line of light around the entire building except where



Perspective View of Daylight Building Showing Unbroken Window Area

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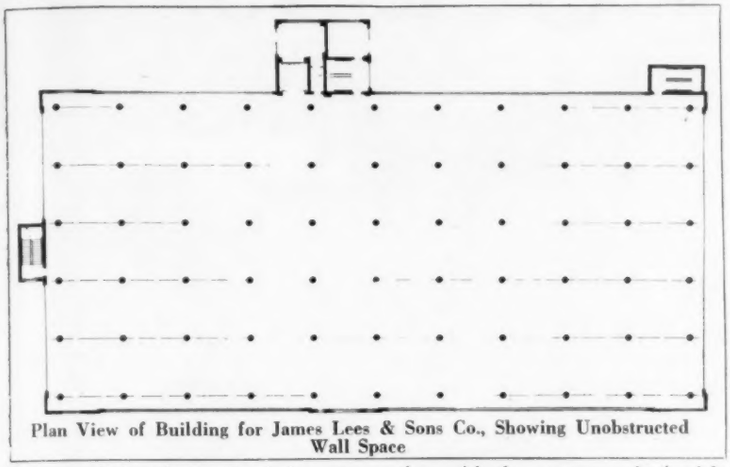
STEEL EVERY DESCRIPTION **IRON**

broken by stairways or other features.

By reference to the accompanying illustrations it will be noticed that apart from the center and corner pylons, which have been added to the facades to give an architectural effect, there is a total absence of pilasters, slabs project beyond the columns to the wall line, the structural walls under the windows being built directly upon the projecting floor slab. This ingenious method gives not only a maximum of daylight, but by the elimination of the wall columns the concrete work is simplified and together with the economy obtained by making use of the cantilever principle, results in a considerable saving in cost in the construction of the building.



Plan View of Building for James Lees & Sons Co., Showing Unobstructed Wall Space

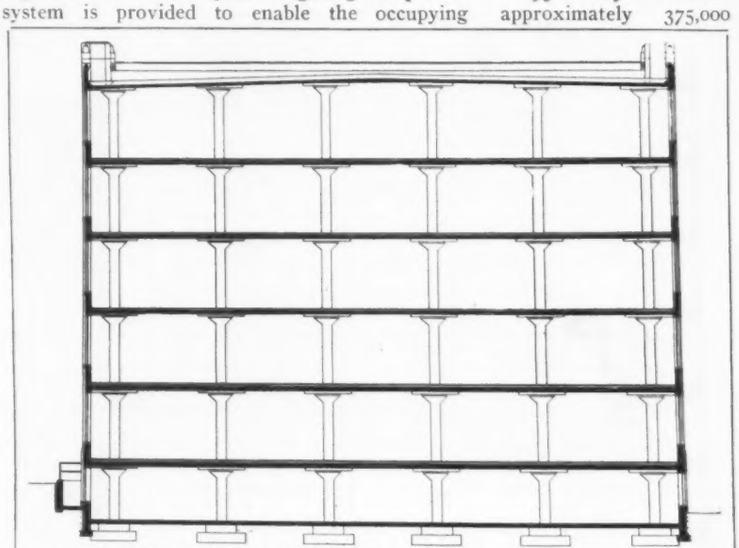
thus permitting the steel windows to be made continuous. This results in permitting an unusual amount of light to flood the interior of the building, adapting it to the purposes of manufacturing which in this case required a building 120 feet wide without an excessive story height to obtain the proper daylight illumination. Rolled steel sash of Truscon manufacture, glazed with factory ribbed glass having diffusing qualities without glare, are used.

Cantilever Principle

This unbroken extent of window space is possible by making use of the well known engineering principle of the cantilever. The first row of interior columns is placed five feet back from the wall and the concrete floor

Another advantage claimed to result from the omission of the wall columns with their projections on the inside of the building, is that the installation of work benches and other equipment as well as the radiation for the heating system is greatly facilitated. The new building is now practically ready for occupancy.

The artificial lighting system installed has been designed so that production may continue uninterruptedly when natural light is insufficient, the system of illumination being arranged to give uniform light intensity throughout. The lighting fixtures are designed to suit several sizes of lamps, permitting change in intensity if desired owing to change in operating conditions. A separate lighting system is provided to enable the watchman to make his rounds throughout the building without unnecessary illumination.



Sectional View of Daylight Building Showing Cantilever Floor Slab

Machinery Installation

As many other alterations are in progress or contemplated in the plant, the new building will temporarily be utilized for various purposes other than manufacturing, after which it will be available for the increase of manufacturing facilities. The machinery to be installed will be machinery which James Lees & Sons Company already have in operation, supplemented by new machinery. A part of the equipment will be operated in group drives and the remainder will be driven by individual motors.

James Lees & Sons Company operate plants in Bridgeport and Philadelphia, Pennsylvania. The concern started business in 1860 and was incorporated in 1895. They have been occupying approximately 375,000 square feet of floor space and the new building will add about 180,000 square feet, or approximately 50 per cent. increase.

They are manufacturers of woolen and worsted yarns including the well-known Minerva knitting yarns, the sale of which has had a wonderful growth in the last few years. Incidentally the sale of the mills' other products has also largely increased in the same period. The reason for the erection of the new building at the present time is to relieve the congestion around the plant and give more satisfactory working conditions, also to modernize the manufacturing facilities.

Extensions at Bates Manufacturing Company

Main Mills Widened 36 Feet by Building a New Front and Removing the Old Wall—Increased Window Area—Rearrangement of Departments to Increase Manufacturing Efficiency—Engineering Features in Connection with the Work—Electrification of Plant

By *William P. Snow**

THE original mills of the Bates Manufacturing Company, Lewiston, Me., were built in 1852, according to the most approved plans of Amos D. Lockwood, the founder of Lockwood, Greene & Co., and consisted of Mills Nos. 1 and 2, each with a picker wing and storehouse in the rear, which received cotton bales from their own siding and shipped their finished product from the same track.

These mills had four stories with narrow attic close under the roof, the attic floor being supported by the truss rods, similar to many old American mills. There was also a one-story wheel house attached to each mill. The wheel house had been built up and the attic made a full story previous to the first survey of the Bates yard made by present members of Lockwood, Greene & Co. in 1896.

The No. 2 wheel house still contains two Boyden water wheels that were set when the mill was built. They have been partially refitted and are still being operated at an efficiency of about 75 per cent. There were originally three water wheels having brick circular casings combined in a group, with side outlet into a common raceway, making a compact unit. The No. 1 wheel unit was remodeled many years ago.

Fig. 1.—New Front with Concrete Face; Note Difference in Window Area of This Front and Old Wall Shown at Fig. 2

Mills Widened 36 Feet

In 1915 the 100-foot space between the main mills was filled, making a continuous mill building 770 feet long. In 1920 the Bates mill contained 275 cards, which were operated in thirteen different rooms. Other processes were widely distributed. This caused the owners to make studies of the possibilities of improvement by reorganizing the mills, resulting in the decision to widen the main mills 36 feet by building a new front and removing the old wall. The design of building changes was placed under the supervision of Lockwood, Greene & Co.

This extension increased the avail-

* Lockwood, Greene & Co., Engineers, Boston, Mass.

Excelsior Knitting Mills
Union, S. C.

HEMISPHERICAL-BOTTOM TANK

This type of tank was invented by Horace E. Horton, founder of Chicago Bridge and Iron Works

Charlotte Bonded Warehouse
Charlotte, N. C.

ELLIPTICAL-BOTTOM TANK

This type of tank was invented by George T. Horton, President of Chicago Bridge and Iron Works

Are You Providing Plenty of Water for Your Plant?

One essential in connection with your plant is an ample supply of water.

Do you require water for operation? for boiler feed-water? for drinking and sanitary supply? for cleaning?

Probably. And in addition you need water for fire protection.

In selecting your water supply it is important that you choose the system which will best serve your needs.

The Gravity System makes water plentiful and sure. Ample storage capacity is available to not only take care of your operating needs today but to take care of the demands of the future without continually providing new equipment.

With reserve storage available in a Horton Elevated Steel Tank you have no fear of a water shortage due to the break-down of your pumping plant. The fact that you have this water *always ready* makes serious fire loss less probable. Hydrants well located and movable or fixed hose reels make the water stored in your Horton Tank instantly available when fire comes.

The Force of Gravity Never Fails
Therefore, Horton Tanks Never Fail to Protect

Because the water they store flows by the natural force of gravity without the operation of any machinery, Horton Tanks furnish *positive* fire protection. Whether you use a sprinkler system or depend on fire hydrants, you may be sure that the water stored in Horton Tanks is ready for instant fire use.

Plans, specifications and estimates furnished gladly without obligating you

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HORTON TANKS

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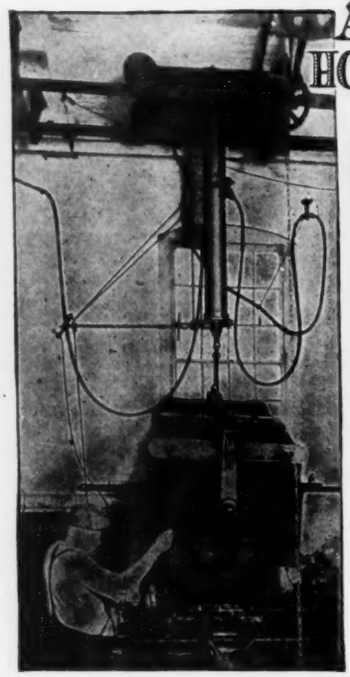
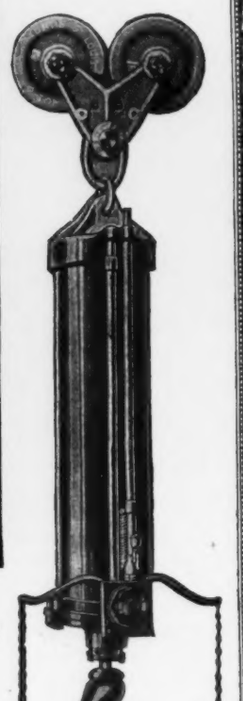
CURTIS AIR HOISTS





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CURTIS
AIR COMPRESSORS-HOISTS-TROLLEYS-CRANES
ST. LOUIS

Established 1854

able floor space in the old mills by 115,000 square feet, or about 50 per cent, giving an opportunity to begin reorganizing by having a location to place machinery where it could become a part of a carefully studied scheme for a layout that would materially reduce the operating expenses for many years to come.

The original mills were operated by a good mechanical transmission system, some of which is still in use. But as the expansions have developed during the last twenty years motors have been added as required, so that at present electrically-driven machinery comprises perhaps 80 per cent. of the entire equipment. As the reorganization is carried out the mechanical transmission will be superseded by electrical, so that in a few more years the old heavy shafts and big belts will be retired.

Rearrangement of Machinery

The reorganizing of No. 2 mill has been nearly completed and in No. 1 mill it is in progress. A part of the first story and all of the second contains weaving; the third, spinning; the fourth, roving, and the fifth, carding. The top story of No. 2 mill holds 144 cards with drawing and slubbers. These cards are supported on a strong, rigid floor. They operate well and being all in one room are under the direct supervision of the overseers, giving an increase in production of about 10 per cent. over the output when scattered through many different rooms. That is, the 144 cards produce as many pounds of sliver under present conditions as 156 cards would have delivered in the former locations, and at the same time the product is of a quality much superior to the older work.

Of the accompanying views Fig. 2 shows the old front of mill No. 1 looking south. The old stair tower will be noticed which was carried above the main roof with a canopied deck where hung the bell that has regulated the operatives for seventy years. This tower was removed for the new front.

Fig. 1 shows the new front with concrete face and wood sash and the windows a little more than double the size of the old ones. It shows also one of the new stair towers with elevator well and toilets. The flagstaff formerly on the roof of the old No. 2 tower was reset on the new roof.

Fig. 3 of the interior of the second bent from the new front shows a mill well lighted according to modern methods. The light from the new windows also shows bright on the east side of the third and fourth columns, the latter being 73 feet from the new windows. This also shows the looms that were kept in operation while the old wall was removed from the location where the second row of columns now stands.

The building equipment was made modern in conformity with the high class of construction employed. The electric wiring was all new. Sprinklers were installed, with controlling valves on front for the new portion, while the old section controls were retained in the rear court as previously. New heating was installed for the entire building and a modern system of humidifying in all necessary places. Entirely new artificial lighting was installed, using the direct system with procelain enamelled steel shades.

Special engineering features were the design of wall columns giving windows of 70 square feet area in mill bays 8 feet wide; the support of four floors of machinery in operation while the old wall was removed and the new columns set, and the foundations for wall and columns over the water-wheel feeders.

The feeders for the three water wheels in No. 2 mill were crossed by the foundations for the new front and for one row of columns. These feeders were 7 feet in diameter and 8½ feet on centers. A special footing was put beneath them, with piers between and at sides and a concrete beam over the top, properly distributing the load to be applied by the new wall and columns.

One other engineering feature was carrying the new front wall and a row of columns across the filter. The old filter house was taken down and a concrete slab covered the portion outside the new building and grassed over. The new front rested on a new concrete beam placed upon the division walls between the five filter compartments, leaving the clear water basin undisturbed beneath the filters.

The Androscoggin River, which furnishes power, separates the twin cities of Lewiston and Auburn which have a combined population of about 50,000. The principal business is located on Lisbon Street which is parallel to the new front of the Bates mill, with but one intervening street which borders the power canal.

Fig. 4 shows the bridge over the canal in front of the Bates office, and behind the office the central section of the mill with tower containing stairs, elevator and toilets, while the upper stories carry the new clock, above which is the deck with three arched openings on each side where the old bell hangs and still peals forth its warning to the operatives that the power is ready for use.

The office is directly opposite Pine Street, extending back to the residential section of the city, and as seen from Pine Street the clock is one of the most attractive objects in the city.

Fig. 2.—Old Front of Mill No. 1 Which Was Removed and Mill Widened 36 Feet; Note Bell Which Has Served for 70 Years

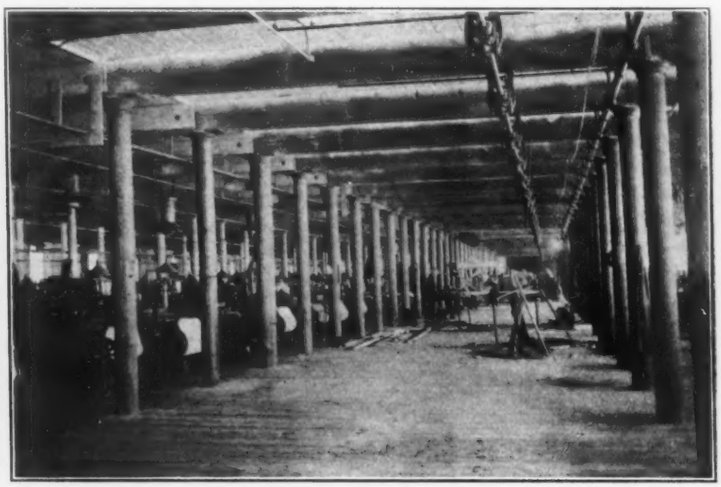

Fig. 3.—Well Lighted Interior; Looms Shown Were Kept in Operation While the Old Wall Was Removed from Location of Second Row of Columns

Fig. 4.—Office of Bates Mfg. Co. in Foreground; at Rear, Central Section of Mill with Tower in Which the Old Bell Now Hangs

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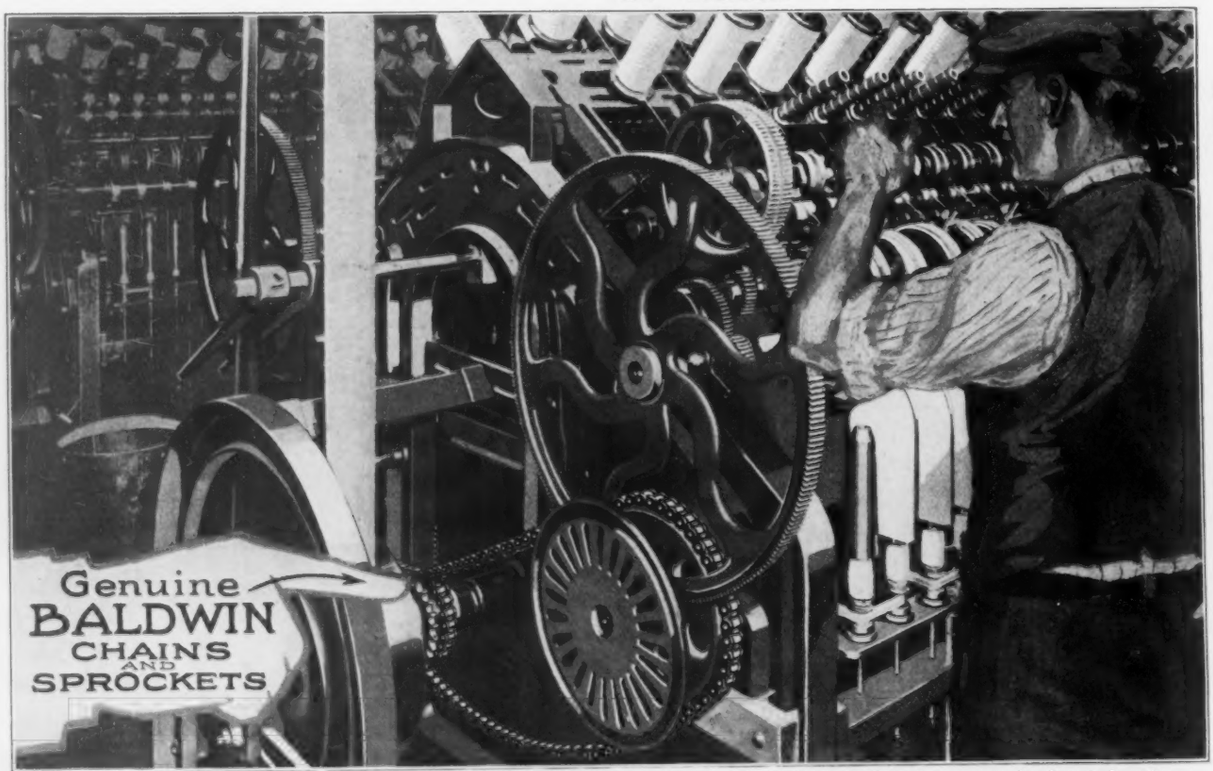
A POSITIVE DRIVE GIVING CONTINUOUS PRODUCTION OVER A LONG PERIOD OF YEARS



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Bigelow-Hartford Plant Expansion

Four-Story Yarn Scouring and Storage Building Designed for Addition of Further Stories and New One-Story Dye House Erected on Site Occupied by Old Buildings—Construction Work Carried on Without Interruption to Mill Operation—Further Extension Under Way

THE BIGELOW-HARTFORD CARPET COMPANY of Clinton, Mass., is an old established concern making high-grade carpets and rugs. The plant has had a steady growth and has added to its buildings and equipment at regular intervals. Such additions have been made after a careful study of the present demands and the future possible requirements.

Early in 1922 it was decided to increase the yarn scouring and dyeing facilities and to improve, if possible, the existing conditions in these departments. The existing dye house had been remodeled and added to from time to time, but had become inadequate and provided poor working conditions.

A thorough study was made and various schemes analyzed. It became evident that the new dye house should occupy the space on which was located the old dye house, the yarn scouring building and a gray yarn storage building. The old dye house was in full operation and to accomplish the change decided upon and not interfere seriously with the production, added many difficulties to the ordinary building operations. The work was aided somewhat by the fact that between the street and one end of the dye house was a piece of land which, by the removal of some small buildings, could be used.

The plan as finally adopted proposed to erect on this land a four-story yarn scouring and storage building, 115 by 102 feet. The dye house proper which was to join this new building and cover the space occupied by old buildings was to be 268 by 98 feet, one story high. Both buildings are slow-burning type mill construction.

Scouring and Storage Building

Work was started in the summer of 1922 with the removal of the old buildings from the lot to be occupied by the yarn scouring and storage building. This building was then erected, being substantially completed about the first of November. The occupancy of this building was laid out as follows: First floor, yarn scouring and drug room; second floor, shade room and gray yarn storage; third and fourth floors, gray yarn storage. The two upper floors which were to be used entirely for storage have a comparatively low head room and the floors are pitched 6 inches from the center to the wall. Chutes deliver yarn from the three upper floors to scouring machines on the first floor. The construction of this building consists of brick walls, wood sash, with heavy wood mill construction for the interior. The building was designed for the addition of future stories.

New Yarn Scouring and Storage Building of Bigelow-Hartford Carpet Co. at Clinton, Mass.

Dye House Construction

The construction of the dye house is slow-burning mill type with monitor roof. Concrete trenches are provided for dye kettles, with brick paved floor areas in between. Due to the slope of the land, the floor level on one side of the building is some 8 feet below the ground level which somewhat reduces the size of the windows on the south side, but by means of the monitor good natural lighting conditions are provided.

The kettles will be arranged in four lines running the full length of the dye house, having one line against each wall and a double line in the center, with brick paved floor between, pitched to drain into the kettle trenches.

The concrete trenches in which the kettles are set will also contain the hot and cold water piping to the kettles. The steam piping will be over the kettles. Low pressure steam, supplied from a bleeder type turbine, will be used throughout the dye house.

The hot water will be supplied from the condensers in the power plant with a 50,000 gallon reservoir for peak and night demands.

The dye house ventilating system which will keep the room free from steam, fog and condensation, will consist of four ventilating fans which will supply and deliver warm air about the room through a system of air ducts, together with hoods over each pair of kettles, with a ventilating stack from each hood up through the roof.

It is expected that work will be completed sometime early in the spring. Charles T. Main, engineer, Boston, planned the improvements and is in charge of the development.

New Dye House, 268 Feet Long, of Bigelow-Hartford Carpet Co. at Clinton. Ventilating Stacks on Roof Are Connected to Hoods Over Dye Kettles

Try This Yourself

Work near a sunny window for just 15 minutes. Expose your eyes, not directly, but to the *reflected* glare of the sun, and see what happens. At the end of that time, you'll decide to equip every sunny window in your plant with

AEROLUX VENTILATING WINDOW SHADES

Few things sap energy and dull initiative so quickly as sun-glare—bright light that tires the optic nerve. The same sun that shines into your windows puts nations completely to sleep in the tropics every afternoon. It is chief cause of the afternoon "let-down" in thousands of sunny plants.

Plant shading is fully as important as plant lighting. AEROLUX Shades are the logical solution. They ventilate, giving your workers air without glare, lowering the temperature from 10 to 15 degrees. They are the most economical shades to be had—handsome, durable, easily installed with any sash construction.

Send for our free booklet—"LIGHT AND THE TIRED WORKER." New light on an old subject. No dry statistics, but material right out of your own life.

THE AEROSHADE COMPANY

(Makers of the famous Aerolux Porch Shades for Residences, Country Clubs, etc.)

2391 Oakland Avenue, Waukesha, Wis.

Air Without Glare

SULLIVAN AIR LIFT

A Modern Method of Well Pumping

What is your Pumping Problem?

DURING 1922 Sullivan Air Lifts were installed for well water supply in 37 different states and in several foreign countries, for municipalities, institutions, factories, railroads, ice plants, mines, etc.

The uniform satisfaction which these plants are giving is due to the fact that Sullivan Air Lift Engineers studied each problem individually, learned the conditions, and sold a plant especially adapted to those conditions.

In nearly all cases, a Sullivan pneumatic pumping engineer supervised the installation and made sure that the customer *got the water.*

If you have a well pumping problem, why not lay it before these Sullivan Engineers? Their experience of 28 years is at your service, *plus* Sullivan Air Compressors and Sullivan Improved Air Lift Equipment.

Ask for Data Bulletin 4471-G

SULLIVAN MACHINERY CO.
408 Gas Bldg., Chicago

SPEED UP WITH AIR

Angle Compound WJ-3 Compressor. Bulletin 75-S.

Portable Mine-car Compressor, WK-2b. Bulletin 75-I.

Straight Line, Steam Driven, Single Stage Compressor, WA-6. Bulletin 75-F

IN the mine, in the quarry, in the foundry and shop, for pumping water, excavating rock and working metals, air power increases production, makes labor more efficient, reduces costs.

Sullivan Air Compressors

assure a constant supply of this modern, adaptable power, at low expense. Some popular types are shown in this page. If you have air power problems, Sullivan engineering experience is at your disposal.

Booklet 121 illustrates all types Ask for it

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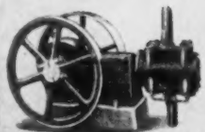
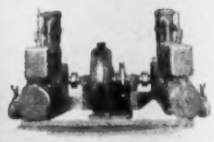


Belted, Straight Line Compressor, WG-6. Bulletin 75-B.

Portable Gas-engine driven Compressor WK-3b. Bulletin 75-T.



Twin Angle Compound Compressor, Motor Driven, WN-4. Bulletin 75-S.

Sullivan Machinery Company

CHICAGO NEW YORK LONDON PARIS

Sanford Mills Yarn and Finishing Buildings

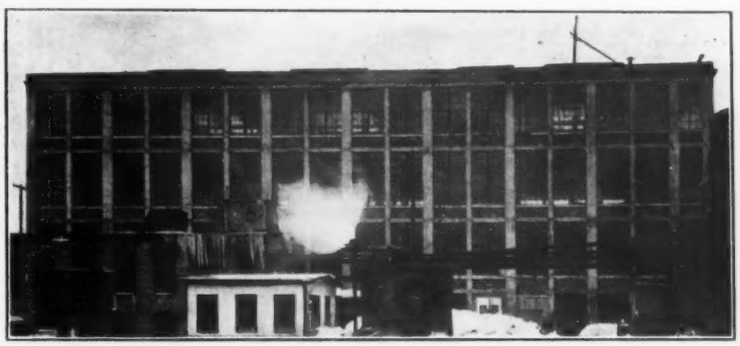
Two Reinforced Concrete Buildings Erected at Sanford, Maine—Completion of Six Story Spinning Mill, 253 Feet Long, Gives Company Over 300,000 Square Feet of Floor Space for Wool Washing, Combing, Drawing and Spinning—Four Story Finishing Building, 154 Feet Long

A SPINNING mill and a finishing building were erected by the Sanford Mills, Sanford, Me., during the last year. With the new plant of the Goodall Worsted Company, which is described on another page, these new buildings make 1922 an outstanding year for new mill construction in this section.

The principal products of Sanford Mills are the well known mohair pile fabrics that are distributed under the copyrighted name of "Velmo" by L. C. Chase & Co. of Boston. This material has been used for many years as the seat covering of passenger coaches and parlor cars. About four years ago some of the leading automobile manufacturers began using it for the upholstery of finely finished closed cars. It has proved so desirable on account of its luxurious appearance and unusual wearing qualities that many added makes of cars have adopted the fabric for the interior finish of their best cars. It is principally to supply this rapidly increasing demand for "Velmo" by the automobile industry that these extensions have been made.

Until 1919 Sanford Mills had conducted practically all of their manufacturing and finishing processes in buildings of the so-called mill construction with either brick or wooden walls. During that year the company made quite a radical departure from its previous practices by building a dye house and large four story spinning mill of reinforced concrete. Another spinning mill and a finishing building were the main buildings added during 1922.

The new spinning mill is considered an extension to the mill built in 1919 and follows it very closely in the major dimensions and layout. In plan the building is 110 feet wide by 253 feet long and six stories in height. The exterior treatment is a reinforced concrete skeleton with Fisklock brick curtain walls and rolled steel sash with wire glass. Steel sash was furnished by the Detroit Steel Products Co. This wall construction is designed for the maximum distribution of natural light, with the result that all parts of the various floors are well lighted.



Sanford Mills New Finishing Building

In detail, the bays are 18 feet by 27 feet, of beam and girder reinforced concrete, making four bays in the width and fourteen in the length of the building. The story heights are 16 feet in the first to third stories and 14 feet in fourth to sixth stories. All interior columns are round and in order to keep the diameter to a maximum of 16 inches steel cores imbedded in concrete were used in the interior columns from the first to fourth story. In the fifth and sixth stories spirally reinforced concrete columns were used.

Two special features in this building are a monitor and partial basement. This monitor spans two central bays of the roof giving a clear height of 22 feet. It has a clear height of 8 feet above the roof and is fitted with rolled steel wall sash. This sash is provided with ventilators controlled from the floor by mechanical operators. Although the lighting arrangement of the intermediate floors is very satisfactory, the unusually fine lighting features of the top floor are considered of great advantage in final processing of some of the finer counts of yarns.

Conditioning Room in Basement

The basement covers about two-thirds of the ground area and in size is 82 feet by 200 feet. It is 12 feet deep and is almost entirely below grade so as to give an even temperature and humidity for the conditioning of the stock. In addition to being served by the elevator, there will be several chutes in the first floor for the direct distribution from the machines to storage.

The floor finish of the basement and first floor is granolithic cement of special wear resisting qualities. In all floors above it is tongued and grooved maple laid over 2 inch hemlock, imbedded in tar sand. The machinery can be effectively fastened in place by lag screws through the top and underflooring, thereby doing away with any necessity of drilling the concrete for expansion shields or through bolts.

Sprinkler Tank Added

The mechanical equipment is very complete and follows the best standards for modern mill work. It was found necessary to add another sprinkler tank with higher tower to take care of the height of the mill and also to provide for the present and contemplated increases in the plant. This new tank which is located adjacent to the existing tank will be completed this winter. The plumbing is grouped about the central tower that houses the elevators and stairs.

The heating layout is extremely economical consisting of long lines of pipe coils placed against the curtain walls under the sills. Owing to the heat generated by the moving machinery, one square foot of radiation to 10½ square feet of floor has proved more than adequate. This is a very low ratio when the climate and large window areas are taken into consideration. One new elevator is lo-

Sanford Mills Six Story Spinning Mill. At the Extreme Right Four Story Spinning Mill Constructed in 1919. These Two Mills Have Floor Space of Over 300,000 Square Feet Devoted to Wool Washing, Combing, Drawing and Spinning

The Efficiency and Economy of the HARRIS PUMPING SYSTEM

The Harris Air Pumping System is economical in first cost, its up-keep is practically negligible, and it will produce more water and produce it at less cost than any other system available. These broad claims are met and made good because:

(1) Each pump is specially designed and arranged for the highest efficiency.

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(5) Every Harris Pump is compactly constructed of jointless bronze, insuring a life-time of service and is guaranteed by the Harris Air Pump Company.

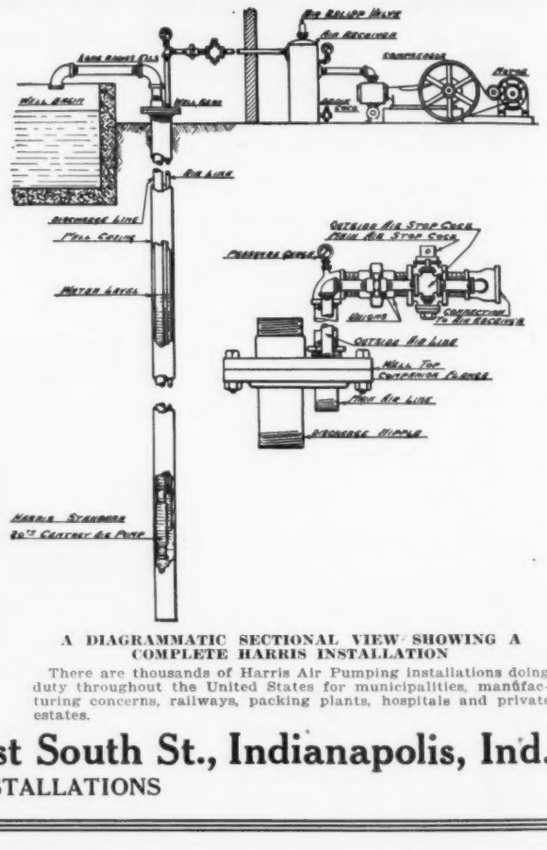
(6) A specially designed arrangement allows scale and dirt getting into the air line to pass out in the well.

(7) Every Harris installation is made to meet and fit into an individual condition; and having been designed for a specific condition it naturally secures maximum results.

After a survey of conditions has been made we can absolutely guarantee a minimum flow for our installation. There is little guess work about it—the only guess, in fact, being the excess well-flow over our guarantee.

A Harris Pumping System will secure for you a dependable water supply at an exceedingly low cost.

Let us submit suggestions in regard to your water problem. Write for booklet " Pumping Efficiency " and other data.



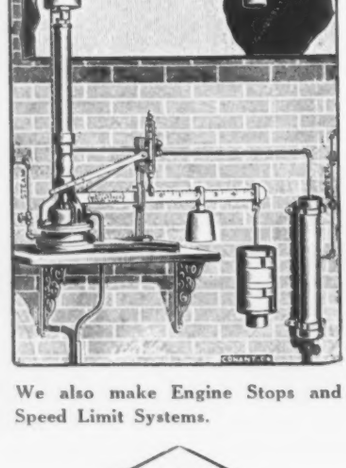
A DIAGRAMMATIC SECTIONAL VIEW SHOWING A COMPLETE HARRIS INSTALLATION

There are thousands of Harris Air Pumping installations doing duty throughout the United States for municipalities, manufacturing concerns, railways, packing plants, hospitals and private estates.

HARRIS AIR PUMP COMPANY, 421 West South St., Indianapolis, Ind.

COMPLETE AIR LIFT PUMPING INSTALLATIONS

The LOCKE Hydraulic Automatic Damper Regulator



We also make Engine Stops and Speed Limit Systems.

TRADE LOCKE MARK REG. U.S. PAT. OFF.

was invented by Mr. N. C. Locke at a time when the regulation of dampers was chiefly by hand and, at best, at a variation of 10 to 15 lbs. steam pressure.

The LOCKE Regulator makes it possible to automatically regulate from one to twenty dampers, from the smallest to the heaviest, at a variation of steam pressure of one pound or less. A LOCKE Regulator is as essential as coal or oil in the up-to-date power plant. It will work equally as good where coal or oil is used to make steam.

There are $3,000,000.00 of " LOCKE'S " in active use today, whose purchase was based on the fact that official Government tests prove that a " LOCKE " means 10% to 14% saving in coal consumption. We also make the following steam specialties: Atmospheric Relief Valves, Back Pressure Valves, Balance Valves, Check Valves, Combination Pressure Regulators, Damper Regulators, Exhaust Relief Valves, Globe Valves, Non-Return Stop Check Valves, Paper Drying Regulators, " Beats All " Pump Governors, Boiler Feed Pump Governors, Elevator Pump Governors, Boardman Fire Pump Governors, " Beats All " Reducing Valve, Double and Single Lever Reducing Valves, " New Era " Reducing Valves, " Old Reliable " Reducing Valves, Low Pressure Safety Valves, Steam Separators, Slasher Regulators, Open Float Traps, Water Seal Traps, Vacuum Breaker Valves, Water Regulators, Vacuum Pump Regulators.

LOCKE REGULATOR CO., Salem, Mass.

ESTABLISHED IN 1871

cated near the center of the building and the elevator at the party wall of the four-story mill has been extended so as also to serve all six floors of the new mill. The walls, ceilings and columns throughout are painted with mill white except for a four-foot dado of battleship gray.

Finishing Building

The finishing building is located between the dye house and drying rooms so as to be served by both without transfer through intermediate departments. It has plank floors over steel beams and the exterior is of concrete skeleton brick curtain walls and rolled steel sash, to match in general the architecture of the spinning mill. It is 85 feet by 154 feet and four stories in height. Although located considerable distance away, the story heights and floor levels are the same as in the spinning mill, this provision being made with a view to having as far as possible all future buildings throughout the plant laid out for uninterrupted movement of material.

The manufacturing processes in the spinning mill start with wool washing and combing on the first floor. From the combs the tops can be directly stored in the basement to allow time for proper conditioning before going to drawing and spinning. The second floor is principally given over to wool storage and wool sorting, as this arrangement permits direct chuting of the sorted products to the washers. The third to sixth floors will be given over to drawing, spinning and twisting.

In the finishing building both wet and dry finishing will be conducted. Part of the tubs in the existing dyehouse were enclosed in the first floor of the new building and washers will be added. The upper floors will be used mostly for steaming, pressing and inspection.

Construction work was started August 1, 1922. The finishing building is now occupied by the owners and the installation of machinery in the spinning mill will start in February. George A. Clark, of Sanford, was the engineer for this work, and Turner Construction Co., Boston office, the builders.

Southern Mill Village Development

Great Activity in Last Six Months—1923 to Be Record Year in This Phase of Betterment

By *E. S. Draper**

TO characterize any one year as a year of depression and activity sounds rather ambiguous. However, 1922 included six months which were very inactive while the latter half of the year saw construction that resembled the post-war boom in the size and extent of developments.

Numerous southern mills found it necessary to add to their villages to accommodate night and day shifts, some mills doubling their village capacity. As this article goes to press this activity is proceeding merrily, gathering impetus as it goes, and would lead the writer to venture the prophecy that 1923 in Southern textile village building activities will come close to the record year of 1919 in the extent of village developments.

Settled Business Policy

Through the alternate periods of business activity and depression there is a gradually increasing number of Southern mills that continue their village improvements as a matter of business policy, never permitting past improvements to suffer for lack of maintenance and allowing their future improvements to be governed by high standards and a common sense realization that when the pendulum swings too far in one direction it will come back in due course of time.

There are many mill corporations under the close observation of the writer and his staff who practice this sound policy of village development and maintenance among whom may be mentioned the following: West Point Manufacturing Co. of West Point, Ga., operating the Lanett Cotton Mills, Shawmut Mill, Langdale Mill, Fairfax Mill and Riverdale Mill; the American Textile Company, Atco, Ga., which holds the reputation of the most completely developed mill village in the South, where maintenance or improvement work is equally thorough during periods of adversity; Dunson Mills, La Grange, Ga.; Pacolet Mills of Pacolet, S. C.; the mills of the Tanner interests at Spindale, N. C.; Abbeville Cotton Mills, Abbeville, S. C.; Erlanger Mills, Lexington, N. C.; Glenn Lowry Manufacturing Co., Whitmire, S. C.; Carolina Cotton and Woolen Mills, Spray, N. C., and others who have held to a high standard of village development.

All of the mills named above have extended their village improvements coincident with their house building in accordance with the well founded policy that village improvements are a paying asset to the mill.

In landscape planting of the mill and office, school and community building grounds, few, if any, mills in the South present a more attractive appearance than the grounds of Abbeville Cotton Mills, of which a picture is reproduced with this article. A beautiful community building has been erected and a splendid play field adjacent to it is under development.

Other Southern mills which have acted on their belief that attractively planted surroundings have a beneficial effect on the lives of their employes are the Efird and Wiscasset Mills of Albemarle, N. C.; Chadwick-Hoskins Mills, Charlotte, N. C.; Southern Novelty Co., Hartsville, S. C.; Brandon Mills, Greenville, S. C., and Drayton Mills, Spartanburg, S. C.

The development of the North Bibb City Village of the Bibb Manufacturing Co., at Columbus, Ga., has been praised by many mill men of all sections who have inspected it as being one of the major achievements of the South in village construction. Built on land that for years had been considered impossible for village development owing to its steep slopes, ravines and heavy grades, completed with winding streets adjusted to the contours of the land, giving ever changing street vistas and attractive cottages, many with river views of great beauty, it is a tribute to the skill of the landscape architect in adapting apparently useless land for a village development that is an economic and civic asset to the mill.

Abbeville Cotton Mills Grounds Planting Viewed from Street

View in Atco, Ga. An Example of a Well Improved Village Community

The list of new mills under way in the South at the present day is familiar to all textile readers. Each mill in almost every instance means a new village, and such developments as Ware Shoals and similar large scale improvements enter into the realm of city planning. Ware Shoals is following carefully detailed plans in the development of its civic center.

House Types and Lot Sizes

There are many distinct points in village construction which have evolved from the periods of inflation and deflation through which Southern mills have passed. The experience of many mills in experimenting in house types, hotels and boarding houses, group houses, etc., has brought forth interesting results. The consensus of the opinion in the writer's organization, after seeing the effects of the development of the past five years is that simplicity both in style and arrangement must be kept as the keynote of the mill village house. Without being retrogressive in one's views, it seems possible to go too far in setting new standards.

The size of the lot unit is a much more important factor than it was formerly considered, because of its relation to village construction and maintenance costs of utilities.

The new village developments indicate that some mills have not profited by the experiences of the past and are pursuing the same old hit or miss policy. Fortunately they are in the minority and the majority of Southern mills are clearly taking advantage of the forward ideas in village development which have come to the front in the past few years in developing villages which are a credit to the mill, a civic asset to the town or county, and a stimulus to good standards of living in the community itself.

As long as the present system of village ownership and control by the mill shall obtain in the South, the mill corporations have a responsibility to themselves, their people and the community at large, to improve their villages as they do their mills and to make the living standards of the community as high as the standards which they are constantly striving to achieve in the spinning of yarn and weaving of cloth.

*Landscape Architect and City Planner, Charlotte, N. C.

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with the

DeVilbiss
Spray-painting System

Whether painting the interior of your mill with light-reflecting paint or protecting the outside walls against the elements—spray-painting is 4 to 5 times faster on these jobs than hand-brushing. This gives you a 75% to 80% saving in painting labor costs.

In addition, painting the DeVilbiss way insures a more thorough, more uniform, longer lasting coating and much cleaner work.

We shall gladly tell you more about how to cut your painting costs and to get improvement in the paint application.

The DeVilbiss Mfg. Co. 3672 Detroit Ave. **Toledo, Ohio**

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—Wayne Knitting Mills, Fort Wayne, Ind.

"Are very well satisfied with the lamp, as we do not have to depend on daylight for color matching."

—Botany Worsted Mills

"The Macbeth Lamp has proven of material value to us in our Dye House in matching colors . . . we are very much pleased with the results we are obtaining from its use."

—J. H. & C. K. Eagle, Shamokin, Pa.

Artificial Daylighting Co., Inc.

Mfgs. of Apparatus for the Scientific Reproduction of Daylight

AT THE SILK EXPOSITION AND

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Its Close Grain Gives This Hardwood Long Wear

When you consider the subject of flooring for the mill, think in the terms of the future as well as the present—and investigate Chief Brand Hardwoods.

The close-grained structure of this Michigan Hard Maple flooring material gives it great strength to stand hard usage. It preserves its pleasing appearance year after year, free from splinters and bad spots. There is none of the irritating "dust" that concrete floors produce.

We have several interesting little booklets on this subject. We will mail them to you on request.

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Our facilities enable us to give prompt service on large quantities

KNEELAND - BIGELOW CO.
BAY CITY MICHIGAN

Chiquola Village Extension

Built 132 New Bungalow Type Houses for Operatives; Also Houses for Superintendent and Overseers

WHEN it was decided to put the mill of the Chiquola Manufacturing Company at Honea Path, South Carolina, on night and day shifts, it became necessary to provide additional houses for the extra force of operatives that would be required. These new houses are just being completed and occupy a site adjoining and to the east of the original village.

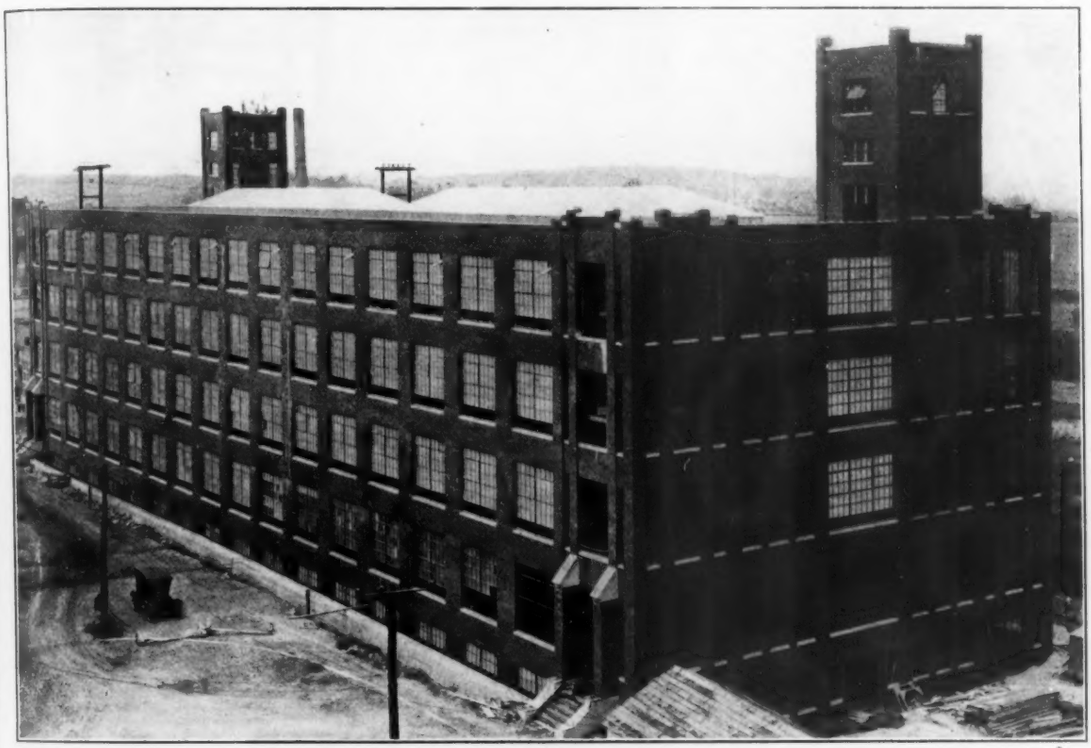
A total of 498 rooms has been provided in forty houses of three rooms, eighty-two houses of four rooms, and ten houses of five rooms each. These houses are of frame construction with ceiled interior, red cedar shingles and No. 2 Carolina flooring. Each room is fitted with a grate fireplace, and the kitchen has a flue connection for a cooking stove. All houses are of single-story construction set on substantial brick piers. The plumbing in each house consists of a Vogel frost-proof closet and a kitchen sink.

They are of the bungalow type and, in addition to a variety of forms, will be painted different colors to further break the monotony. A superintendent's house and five overseers' houses are also included.

Streets are top-soiled and sidewalks concrete paved. A highway bridge has been built to connect the two sections of the village across the ravine. Water supply is obtained from a series of gang wells flowing into a central pump house. The drainage area above this water supply is fenced off and protected from contamination.

The street lighting system consists of 100 candle-power Mazda lamps placed at intervals of 150 feet on creosoted wooden poles, using substantial galvanized iron side brackets and radial wave reflectors. Electric lights are provided in each room and on the back porch of each house.

The contractors who carried out the construction of this village are the following: Operatives' houses, general contractor, Harper Lumber Co.; superintendent's and overseers' houses, general contractor, W. M. Welch; plumbing, J. G. Arnold; electric street and house lighting, Huntington & Guerry; sewer and water system, Henry Construction Company. Plans, specifications and supervision were furnished by J. E. Sirrine & Co., engineers, Greenville, S. C.



New Finishing Plant of Berkshire Knitting Mills, Reading, Pa.

Berkshire Knitting Mills Addition

New Finishing Plant at Reading, Pa., Four Stories and Basement, 265 Feet Long

A NOTABLE addition has been made by the Berkshire Knitting Mills, manufacturers of full fashioned hosiery, at Reading, Pa., in the form of a new finishing plant, 265 feet long by 90 feet wide, four stories and basement. The new building will be used exclusively for finishing and storage. It is connected by an underground tunnel which supplies heat and power from the power plant.

The building is constructed with skeleton steel structure, reinforced concrete floors, finished with 2 inch kreolite wood blocks furnished by the Jennison-Wright Company of Toledo, Ohio, enclosed with brick curtain walls and steel sash. The column spacing is 14 feet by 18 feet. The interior is painted white throughout.

In order to procure maximum light in the top story two hipped skylights, approximately 18 feet in width by 94 feet in length, of the Antipluvius puttyless construction with turret sash and operating device have been provided. The artificial lighting system installed produces daylight effect at night.

So as to maintain a uniform temperature the reinforced concrete portion of the roof has been covered with an insulated layer of gypsum furnished by the United States Gypsum Co., of New York City.

Fire protection is made complete throughout the mill by the installation of a sprinkler system furnished by the Rockwood Sprinkler Company of Worcester, Mass. There are approximately 1515 sprinkler heads throughout the building. A set of Peelle doors have been placed at each elevator shaft which operate in conjunction with the elevators.

In the accompanying illustration two pent houses will be noted which were built to house the elevator machinery. Two Otis elevators with a capacity of 8,000 pounds each in addition to the weight of the car, which travel at a speed of 200 feet per minute have been installed.

Plumbing equipment installed in the lavatories is of most modern type. The Warren Webster vacuum heating system, with the automatic thermostatic control, furnished by the Johnson Service Company of New York City, has been installed. The steam is furnished by the present power plant through an underground tunnel which connects with the new building.

Cleanliness is considered of the greatest importance by the company and the building is equipped with the latest type vacuum cleaner system with floor outlets, furnished by the B. F. Sturtevant Company of Boston, Mass.

View of Chiquola Mfg. Company's Village Extension at Honea Path, S. C.

No. 570

WHAT IS YOUR COST OF QUENCHING THIRST?

TIME WASTED BY EMPLOYES IS EXPENSIVE

On the basis of 1,000 employes—average wage 30c per hour; six drinks per day; 2 minutes per drink; AVERAGE DRINKING COST PER DAY $60.00. In Summer it will be higher.

Cool, refreshing water, provided by modern, sanitary fountains, at convenient locations, will save you money. INCREASE YOUR PRODUCTIVE EFFICIENCY and lower your OPERATING EXPENSE with

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Fig. 627 Ice-Cooled

Fig. 504A With Wood or Fibre Seat

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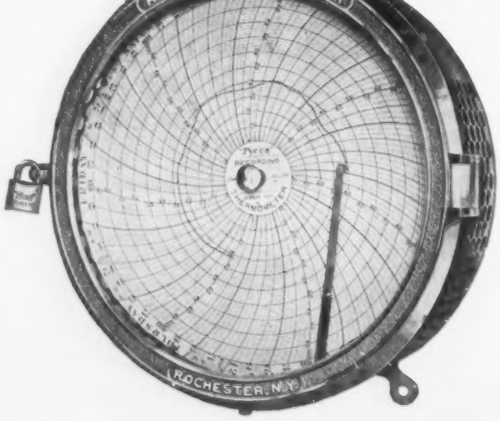

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Taylor Instrument Companies

ROCHESTER, N. Y.

There is a *Tycos* or *Taylor* Temperature Instrument for every purpose

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A "Safeguard"

Stop Preventable Accidents!

Also —

perforated metal for centrifugals, carbonizing, bleaching, wool scouring and drying machines; all kinds of special sheet metal work in practically any metal.

Accidents resulting from moving machine parts, belting, etc., can no longer be considered "unavoidable." Machine guards can prevent these casualties.

You may not realize that in delaying the guarding of your machines you are every day courting disaster and placing your worker in positions of danger.

Your own handy man can easily erect perfect guards from H & K Perforated Material. This perforated sheet steel is both light and strong. It also affords open view of all parts.

The Harrington & King Perforating Co.

639 North Union Avenue Chicago, Illinois

New York, 118 Liberty Street

Mill Construction Report

(*Continued from page 441*)

a branch of the Lowell (Mass.) Bleachery at Griffin, Ga., to care for Southern business, a new plant of the Clark Thread Company at Bloomfield, N. J., which is a branch of the main plant at Newark, and the new bleachery and finishing plant of the Riverside and Dan River Cotton Mills at Danville, Va. The outstanding feature is the Southern development in this branch with more in prospect in 1923.

Power Plants

Water power and electrical developments were far in excess of normal. Most of the old textile mills were located on water power, but with cheap fuel little attention was paid to many of these water powers in recent years, and if all costs were properly charged many of them would be found to operate at a loss. Now it is realized that one of the greatest sources of fuel conservation exists in the replacing of old water power equipment by modern hydro-electric units. Among the mills that have improved their power facilities are the Amoskeag Manufacturing Co., with a $1,500,000 hydro-electric development on the Merrimack River, the Danvers Bleachery, Peabody, Mass.; the Dwight Manufacturing Company at Chicopee, Mass.; the Forestdale Manufacturing Co., Forestdale, R. I., and the Ware Shoals Manufacturing Co., at Ware Shoals, S. C.

Village Extensions

The last six months of the year were characterized by greater activity in village extensions, particularly in the South, due to numerous mills running day and night shifts with doubled forces, and it is predicted that textile mill village activities in 1923 will come close to the record year of 1919 in extent and importance.

New mills show evidence of a policy of somewhat higher initial cost, looking toward a saving in the end when maintenance becomes of first importance. Building equipment is of a higher grade than formerly and expenditures for this item now frequently amount to thirty-five per cent. of the amount involved in the actual construction work.

In the following columns will be found a detailed report of new mills, enlargements and improvements.

Detailed Report of New Mills

NEW COTTON MILLS

Alabama, Montgomery. State Board of Control; started building of 10,000 spindle cotton mill at the Alabama State Penitentiary.

Arkansas, West Helena. Delta Land Co., subsidiary of Parkhill Mfg. Co., Fitchburg, Mass., to start operations Dec. 1, making yarns; 6,656 spindles.

California, Los Angeles. Imperial Cotton Mills Co. started operations in new plant in remodeled building. The mill has 20,000 spindles and 600 looms. The plant is four-story, 150 x 200 ft.

Orange. California Cordage Co.; a subsidiary of the California Wire Co. started construction of a spinning mill, 100 x 137 ft. stucco and tile construction; to care for the operation of 2080 spindles; mill to start operations in February, 1923. Louis Koth, president.

Redlands. West Coast Textile Co.; capital $100,000; new one-story, 80 x 120 foot mill, 32 looms on towelling.

Georgia, Athens. Bowen Crews Co.; capital $50,000; new spinning mill; 3,648 spindles; O. W. Bowen, president.

Rome. McLin Textile Mills; erect plant 106 x 207 ft.; 80 looms installed; capital, $150,000.

Maryland, Ilchester. Thistle Cotton Mills, Inc.; erect new mill, 200 x 60 ft.; equipped with 12,000 spindles and other accompanying machinery.

Massachusetts, Boston. Barmen Lace Mfg. Co.; incorporated with capital of $100,000; offices at 161 Devonshire St.; Joseph W. Powdrell, president; plant at 251 Causeway St., placed in operation; 54 lace machines.

Holyoke. Farr Alpaca Co.; erect spinning mill; to be in operation by May, 1923; 70,560 spindles on cotton yarns.

Missouri, Kansas City. Sanitary Bedding Co.; new mill at 2514 East 15th St.; 50 x 135 foot; all kinds of bedding; one garnett; two pickers; E. H. Kraemer, proprietor.

St. Louis. The Hebeler Braid Co.; new mill on shoe laces; Henry Hebeler, Jr., president; Fred Hebeler, treasurer; capital increased to $80,000.

New Hampshire, Manchester. Russell Mfg. Co.; new mill on twisted and braided textiles; H. I. Russell, proprietor.

New Jersey, Newark. New Tex Mfg. Co., 129 Oliver St.; new narrow fabric plant; W. S. Buswell, 329 Park Avenue, East Orange, proprietor.

New York, Fort Covington. International Tape Co. formed to manufacture tape in new one-story plant; J. F. Lacombe is president and superintendent.

Ohio, Elyria. Cordtex Mills; erected new building equipped with 2,000 twister spindles and 10 looms.

Oklahoma, Sands Springs. Sands Springs Cotton Mill Corp.; organize with capital of $1,000,000; building cotton mill; 12,000 spindles and 250 looms.

North Carolina, Belmont. Linford Mills Co.; equips its new spinning mill.

Charlotte. Republic Cotton Mills, to erect new plant to accommodate 1,000 looms.

Cherryville. Carlton Yarn Mill; capital stock, $200,000; Dr. L. L. Self, president; build new combed yarn mill with 5,000 spindles; C. A. Rudisill, treas.

Cramerton. Mays Mills, Inc.; to build weaving mill to cost $1,000,000 to accommodate 2,000 looms; application for charter changing name to Cramerton Mills, Inc., and increasing capital stock from $2,000,000 to $3,000,000.

Gastonia. Arkray Mills, Inc.; completing erection of two-story and basement mill, 136 x 471 feet; 12,000 spindles to start; provision for 20,000 when complete.

Gastonia. Art Cloth Mills; incorporated with capital of $200,000 to build mill with 72 looms.

Gastonia. Groves Mills, Inc.; to erect a new mill to cost $75,000; machinery to include 15,000 spindles.

Gastonia. Ragan Spinning Co.; capital, $500,000; first unit of enterprise a 10,000 spindle mill.

Granite Falls. Southern Mfg. Co.; new mill, 132 x 75 feet, two stories; start operations in March, 1923; 2 pickers; 3,000 spindles.

Kings Mountain. Patricia Mills, Inc.; capital, $100,000; C. E. Neisler, president; 176 jacquard looms on napkins, etc.

Lenoir. Nelson Cotton Mfg. Co.; will build yarn mill at Whitnel, N. C., with equipment of 6,000 spindles; organize with capital of $500,000; J. L. Nelson, Sr., treasurer.

Mebane. Durham Hosiery Mills; erect new combed yarn spinning mill; 11,000 spindles on 60s to 80s.

Mt. Holly. American Yarn & Processing Co.; start new spinning mill under name of Madora Spinning Co. with space for 3,000 additional spindles.

Newton. City Cotton Mills; new mill with 5,000 spindles on cotton yarn; $250,000 capital; G. A. Vorlick, pres., and R. B. Knox, treasurer.

Rockingham. Entwistle Mfg. Co.; erecting new unit, 450 x 125 feet, brick structure.

Shelby. Dover Mill Co.; erecting mill to house 10,000 spindles and 250 looms.

Spindale. Horn Co.; new plant on rag rugs; capital, $125,000; 16 looms, 1 braider; S. B. Tanner, president.

Stanley. Lola Gingham Mills; organized by Lola Mfg. Co. interests; erecting weave shed with 250 looms to weave yarn spun by Lola Mfg. Co., which is adding 5,000 spindles; new mill building 100 x 260 ft.

Stony Point. Watts Spinning Co.; equip mill with 6,000 ring spindles and 4,000 twister spindles.

Troutman. Hall-Kale Mfg. Co.; granted a charter to manufacture fine combed yarns; erect new 6,000 spindle mill.

Rhode Island, Pawtucket. J. & P. Coats, Inc.; erect two-story, 40 x 72 foot, addition; also let contracts for two story, 95 x 370 foot building and three-story, 95 x 270 foot building; new mill will contain approximately 100,000 spindles.

Pawtucket. Elsbee Mfg. Co.; capital, $25,000; start new mill in leased location for cotton specialties.

Providence. Admiral Braid Works; organize to operate plant at 273 Admiral st.

Providence. The Barwood Webbing Co. established; J. H. Barrett, president; E. A. Wood, treasurer; elastic webbing.

Providence. Lincoln Lace & Braid Mfg. Co., 129 Charles St.; new mill established by B. Geppleman.

Westerly. Clyle Mills start operations at new plant; 46 looms on cotton shirtings; R. B. Meikle, president.

South Carolina, Blacksburg. Cash Mfg. Co.; incorporates, $250,000, to establish new mill; J. W. Brown, president and treasurer; plans call for 10,000 spindles and 260 looms; initial installation will be 5,000 spindles.

Charleston. New Charleston Mills, Inc.; J. N. Weil, owner; erect new mill 60 x 120 ft., two stories; cotton batts and mattress felts.

Clover. Hampshire Spinning Co.; $1,000,000 capital; to build four-story, 133 by 294 feet mill; 20,000 spindles; also village for employes; Thomas McConnell, president; M. L. Smith, treasurer and manager.

Granite Falls. Southern Mfg. Co.; erecting new 75 x 132 foot mill; will operate 3,000 spindles on 8s to 16s yarns; capital, $85,000; J. B. Elliott, president; D. H. Walrick, treasurer.

Great Falls. Republic Cotton Mills to build 400 x 490 foot structure to house 1,000 looms; completed two-story cotton warehouse; added 25 houses to village; increased capital to $2,000,000.

Greenville. Judson Mills about to build 103 x 320 foot weave shed to house 600 looms; also 50 x 60 foot picker room; enlarge mill village by 130 houses; increased warehouse space; increased capital to $2,500,000.

Tennessee, Chattanooga. Dixie Spinning Mills; capital, $1,000,000; erecting first unit of a group eventually to comprise fifteen units; first plant two-story, 150 x 400 feet, 14,000 spindles, also power plant; erecting 72 houses for operatives; Cartter Lupton, president; J. T. Harrison, secretary and treasurer.

Chattanooga. Jewell Mattress Co.; mattress felt; one garnett; one picker.

Texas, Kingsville; Kingsville Cotton Mills Co.; new plant on cotton twine, with 700 spindles and four finishing machines.

New Braunfels. Planters & Merchants Mills; construction is progressing on new 314 x 130 foot mill to be equipped with 10,000 spindles and 350 looms; also hydro-electric development; the product will be gingham; S. M. Ransopher is president and manager.

Virginia, Stuart. Stuart Textile Corp.; capital, $150,000; 4,320 spindles on cotton knitting yarn.

Wisconsin, Oshkosh. Oshkosh Artcraft Rug Co.; Sam J. Meyer, president; R. O. Davis, treasurer; new plant on cotton roving rugs, bathmats, etc.

Canada, Montreal, Que. American Thread Co. of Canada, Ltd.; cotton threads; capital stock, $1,000,000 authorized; R. C. Kerr, president; J. C. Wylie, treasurer.

Welland, Ont. Welland Cotton Mills Co., Ltd.; organized to build one and two-story 100 x 350 foot plant; president, C. T. Grantham; secretary, L. B. Spencer.

NEW WOOL MILLS

California, Long Beach. Golden State Woolen Mills; rebuilt burned plant and installed 7 sets of cards and 41 looms; complete dyeing and finishing departments.

Connecticut, Thompsonville. Bigelow-Hartford Carpet Co.; erect jacquard mill to house 50 new looms, 115 x 85 ft., one story, brick and steel construction, with sawtooth roof; erect 40 houses for employes, each two-family; 132 x 111 ft. addition to worsted mill; 230 x 112 ft. addition to jacquard weave shed; 144 x 80 ft. addition to dye house; took over Casino hall for storehouse.

Maine, Sanford. Goodall Worsted Co.; erect new spinning mill, brick and concrete, with steel frame, five stories and basement, 280 x 240 ft.; also storage building, fireproof construction, one story and basement, 150 x 50 ft.; also finishing building, 85 x 155 ft.

Massachusetts, Andover. Shawsheen Mills, No. 2; worsted yarns (French system); built yarn mill, storehouse and dyehouse.

Franklin. Whitney Worsted Co.; capital, $150,000; Herbert Lawton, president; C. D. Whitney, treasurer; acquire building formerly the Ray Fabric Mills and install 50 looms and finishing equipment.

Lawrence. American Woolen Co. (Washington Mills) erect mill No. 7, 500 x 100 ft., six stories, concrete to cost about $400,000; erect new mill, 60 x 120 ft. at their Medford (Mass.) plant, five stories, of fireproof construction to cost about $100,000.

Milford. Smith Yarn Mill, Inc., of Worcester; buys local plant of Regal Shoe Co. and installs ten sets of woolen cards.

Waltham. Belgian Spinning Co.; capitalized at $100,000; president and agent, D. A. Servais; leased the former plant of the American Watch Tool Co., Elm St., for the spinning of all sorts of wool yarns; operations started in June.

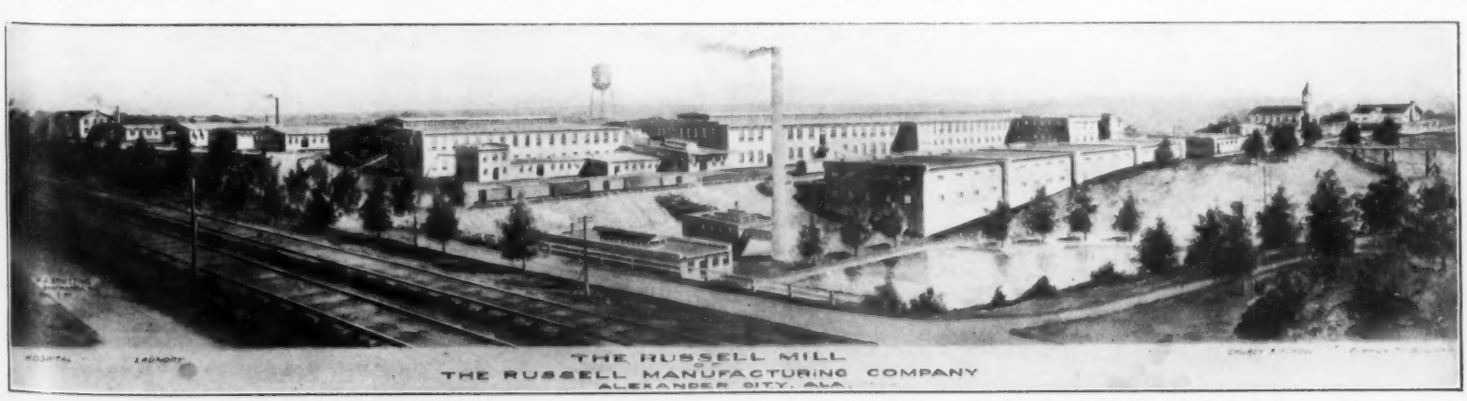
North Chelmsford. Southwell Wool Co.; $200,000 capital; New concern to scour, card and comb wool; 20 cards and ten combs installed in building formerly occupied by Lowell Textile Co.; James Southwell, Mgr.; let contract for 50 x 75 ft. addition.

New Jersey, Bound Brook. Joseph Appleyard established two set woolen mill, 8 looms.

Passaic. Bradford Mills, Inc.; purchased German Castle Park in Garfield as site for new plant.

New York, Amsterdam. Mohawk Carpet Mills erect four-story spinning mill at cost of $160,000; erect new railroad siding; increase capital from $5,000,000 to $11,000,000.

Amsterdam. Stephen Sanford & Sons, Inc.; complete erection of six story mill, 80 x 303 feet, costing about $500,000; start erection of ten-story, 70 x 463 feet warehouse to cost about $250,000; plan a housing development first unit of which will



(Drawing by R. J. Shutting, Chattanooga, Tenn.)

Plant and Community Buildings of the Russell Mfg. Co., Alexander City, Ala.

W. H. SEARS, *Architect*

Member American Institute Architects, American Society Heating and Ventilating Engineers, American Society Civil Engineers

1102-1103-1104 James Building

CHATTANOOGA, TENN.

Partial list of textile mills designed by this firm

Davenport Hosiery Mills	Chattanooga, Tenn.
United Hosiery Mills	Chattanooga, Tenn.
United Hosiery Mills	Bridgeport, Ala.
United Hosiery Mills	Bristol, Tenn.
London Hosiery Mills	London, Tenn.
London Hosiery Mills	Greenville, Tenn.
London Hosiery Mills	Sevierville, Tenn.
London Hosiery Mills	Newport, Tenn.
Sweetwater Woolen Mills	Sweetwater, Tenn.
Signal Knitting Mills	Chattanooga, Tenn.
Sunshine Hosiery Mills	Murfreesboro, Tenn.
Aycock Hosiery Mills	S. Pittsburg, Tenn.
Aycock Hosiery Mills	Whitwell, Tenn.
Kingsport Hosiery Mills	Kingsport, Tenn.
Albany Hosiery Mills	Albany, Ala.
(For Cooper, Wells Co	St. Joseph, Mich)
Kincaid Hosiery Mills	Griffin, Ga.
W. B. Davis & Son	Ft. Payne, Ala.
Richmond Hosiery Mills	Daisy, Tenn.
Kyle-Shelton Co.	Chattanooga, Tenn.
Franklin Hosiery Mills	Winchester, Tenn.

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be 50 houses; increase capital stock from $5,000,000 to $20,000,000.

Jamestown. Jamestown Worsted Mills erecting new four-story 70 x 175 foot combing and spinning mill.; 122 x 180 foot dye and filter house; expansion to cost about $100,000.

Northville. Eli Van Brocklin & Son incorporated for $15,000; start rug business and later install five additional looms.

Yonkers. Alexander Smith & Sons Carpet Co.; erecting four story, 130 x 160 foot spinning mill; two-story, 50 x 150 foot yarn storehouse; one story, 75 x 200 foot wastehouse, and one story, 60 x 130 foot dyehouse; to cost about $300,000.

Ohio, Lima. Lima Woolen Mills Co.; $200,000 capital; new mill on blankets with 25 looms; 3 sets cards; 1,800 spindles; T. M. Maxwell, pres.

Pennsylvania, Bethlehem. Bethlehem Narrow Textile Co.; F. V. Kitzmiller, president; R. K. Loras, treasurer; erects new plant 35 x 80 ft., two stories.

Bridgeport. James Lees & Sons Co.; erect new building, five stories, and basement, 120 x 133 ft., with tower, 27 x 36 ft.; sold mill in Philadelphia at Clinton and Huntingdon Streets to S. Augstein & Co., New York.

Philadelphia. Ardross Worsted Co.; erect three-story and basement mill building, three units 90 x 117 ft.; 103 x 106 ft., and 150 x 185 ft.; construct new machine shop.

Philadelphia. Elmwood Mills Co.; new plant on garnetted worsted waste; one story 50 x 150 ft. mill and 50 x 100 ft. picker house; capital, $50,000. Arthur G. Heddon, president and A. H. Zayotti, treasurer; equipment, ten sets cards, five garnetts, four pickers.

Philadelphia. Spruce Worsted Co.; erect new mill, 75 x 150 ft.

Rhode Island, Central Falls. Superior Worsted Co. establishes new plant for spinning worsted yarns; succeeded later in the year by the Holmes Worsted Spinning Co.; capital, $50,000.

Pawtucket. Stokes Brooks Worsted Co. establishes new plant on men's wear, operating 20 looms; R. S. Stokes and Gilbert F. Brooks, proprietors.

Providence. Rochambeau Worsted Co. erects three-story, 219 x 109 foot, mill in Olneyville; company incorporated $300,000.

Slocum. Pontiac Mills establishes new mill in building formerly known as Yawgoo Mills; operate 20 looms on woolen goods; R. L. Broome, proprietor.

Woonsocket. Fairmount Worsted Co.; capital, $50,000; start new mill on men's wear and dress goods; operating 12 looms; J. F. Sweeney, president and treasurer.

Woonsocket. Guerin Mills, Inc., install 24 looms in Social St. plant; this department to be known as Philmont Mill.

Woonsocket. Regina Spinning Co.; new frame construction, 30 x 60 foot, mill, operating 20 looms on men's wear; J. S. Gom, president; James Gom, treasurer.

West Virginia, Parsons. The Philippi Blanket Mills, Inc.; erect new plant and remove all machinery from Philippi to Parsons, W. Va.

Canada, Dundas, Ont. F. P. Thornton & Sons, Ltd.; capital, $50,000; new mill on blankets; two sets cards, one picker, eight looms; F. P. Thornton, president; F. J. H. Thornton, treas.

Toronto, Ont. Wear-Rite Textile Co.; new mill, two stories, 90 x 138 ft.; 40 looms on coatings and dress goods; operate dyehouse; capital, $375,000; Harold Edmondson, president; T. H. Barton, treasurer.

Trenton, Ont. Dominion Combing Mills, Ltd.; erecting three-story 310 x 118 foot plant to contain 13 cards and 12 combs; capitalized at $2,500,000.

Winnipeg, Man. Manitoba Woolen Mills, Ltd.; erect new building, one story, 80 x 150 ft.; to produce yarns and blankets; capital, $100,000; A. MacLeod, president and J. C. Kyle, treasurer.

NEW KNITTING MILLS

California, Los Angeles. Golden West Knitting Mills; new plant on women's sweaters; capital, $25,000; 12 knitting machines; eight sewing machines; S. H. Cohen, president and treasurer.

San Francisco. College Knitting Co., formerly at Berkeley, Cal., reorganized as the California Knitting Mills; built new mill, 144 x 41 ft., concrete construction; using 15 knitting machines and 21 sewing machines.

San Francisco. Snyder Bros. Knitting Mills. Leased manufacturing plant, 70 x 137 ft. Operations to cost about $40,000.

Connecticut, Bethel. Leroy Knitting Co.; capital, $50,000; new two-story mill, 10 knitting machines; six sewing machines on sweaters; H. S. Phillips, president.

Illinois, Chicago. Blackstone Knitting Mills; new plant at 412 So. Wells St.; 27 machines on neckwear.

Chicago. Kelley Knitting Mills Co., 3150 So. Ashland Ave.; capital, $25,000; stockinette bags; J. J. Cronin, president and treasurer.

Indiana, Fort Wayne. New Haven Silk Hosiery Mill; capitalized at $100,000, Herman Bauer, president; erect new mill, 48 x 86 ft. brick construction.

South Bend. South Bend Hosiery Co.; men's worsted half-hose; operate ten knitting machines, two ribbers, two loopers.

Kentucky, Paducah. Claussner Hosiery Co. organized with W. P. Paxton, president and superintendent; planned to start operations about Nov. 1; nine full-fashioned machines; four loopers; four sewing machines.

Massachusetts, Adams. Joseph Watkowicz & Son; established new hosiery plant with 10 knitting machines and two loopers.

Ipswich. Hayward Hosiery Co., Inc.; incorporated with $200,000 capital; silk hosiery, erect new mill, one story 45 x 135 ft., nine full fashioned machines; four loopers; four sewing machines; Walter E. Hayward, president.

Malden. The House of Byer; women's and infants' hosiery; 45 knitting and three sewing macnines.

Malden. Malden Hosiery Mills; S. A. Kaufman, owner; six knitting machines.

Northampton. Northampton Hosiery Co.; Chas. L. Sauter, president; 8 full fashioned knitting machines; 4 loopers and 4 sewing machines.

Waltham. Blue Ribbon Knitting Mills; Marshall S. Floyd, president and Everett L. Farwell, treasurer; rib jackets and bathing suits; five knitting and seven sewing machines.

Minnesota, St. Paul. Straus Knitting Mills; started operations April 1; manufacture cardigans, bathing suits, anklets and wristlets; 6 latch needle machines.

Missouri, Kansas City. Kansas City Knitting Corp.; branch of the Valatie (N. Y.) Mills Corp. established for production of knitted meat bags.

St. Louis. Lincoln Knit Goods Corp. Capital, $200,000; E. W. Stewart, president; establish sweater and bathing suit plant; 125 knitting and 65 sewing machines; also skein dyeing equipment. E. W. Stewart is president.

St. Louis. St. Louis Knitting Mills Co.; capital, $30,000; new one-story 50 x 75 ft. plant on neckties; operate 15 knitting machines and two sewing machines.

New Jersey, Belleville. Prudential Silk Hosiery Co., new mill on women's silk hosiery; $50,000 capital; Emil Hahn, president; Max Haensal, treasurer.

Bridgeton. Bridgeton Knitting Mills, new plant on women's hosiery; 44 knitting machines, 6 loopers and 5 sewing machines; succeeded by Merit Hosiery Mills.

Clifton. Clifton Textile Co.; new mill on silk hosiery, scarfs, etc.; 18 knitting machines and 16 sewing machines; capital, $125,000; J. L. Wentz, president; A. Dunkerly, treasurer.

Irvington. North-Gale Knitting Mills; capital $20,000; new mill with 7 knitting machines on fancy sweaters; George Gallion, president; H. T. Nordenholz, secretary-treasurer.

Jersey City. De Iasi Bros., new plant at 13 Orient Ave.; contract work on sweaters; 8 flat knitting machines; 5 sewing machines.

Maple Shade. Maple Shade Silk Works new mill; four knitting machines on glove silk; C. Scholer, proprietor.

Paterson. Atlantic Silk Hosiery Co., 22 Mercer St.; new mill; 4 knitting, 2 sewing machines; Louis Tlucka, president; J. A. Harsche, treasurer.

Trenton. Trenton Hosiery Mills start production in new plant; P. H. Delacy, president.

Union Hill. Bergen Knitting Mill; new plant at 545 Blum St.; 30 knitting and 16 sewing machines on sweaters.

West Hoboken. Hudson Knitting Mills, Inc., capital, $25,000; new plant; 9 knitting machines on outerwear; Carl Weiss, president.

New York, Avon. Avon Knitting Co., Inc.; new mill; $60,000 capital; C. F. Holcomb, president; Lewis Tripp, vice-president; William Farnum, secretary, and Clarence Davin, treasurer; boys' ribbed suits; 10 knitters; 10 ribbers; 25 sewing machines.

Brooklyn. Cheesman Bros. start new fancy knit goods plant at 316 37th St.; operate 6 knitting machines and one sewing machine.

Brooklyn. J. Felberg & Son; start new mill on knitted novelties at 231 Snediker Ave.; 8 machines.

Brooklyn. Levine Knitting Mills start new plant at 182 Glenmore Ave., operating 4 knitting and 8 sewing machines on bathing suits and sweaters.

Brooklyn. Samartin Knitting Mills, 1878 Harman St., new plant; 7 knitting machines on sweaters; to add 2 more.

Brooklyn. Sportsmen Knitting Mills, 1 Watkins St.; new mill on shaker sweaters; 6 knitting and 1 sewing machines.

Brooklyn. W. F. Knitting Mills, 28 Powell St.; new mill on novelties; 8 knitting and 9 sewing machines.

Brooklyn. Wyona Knitting Mills, 493 Vermont st., new mill on novelties; 10 knitting and 6 sewing machines.

Buffalo. The Mitchell & Frank Knitting Mills, Inc., capital, $50,000; starts production of sweaters at 1021 Main Street; Thirty knitting machines and 75 employes; H. L. Mitchell, formerly of the Monarch Knitting Mills is president and treasurer.

Johnstown. The Schumann Mfg. Co.; capital, $15,000; established by Arthur Schumann to manufacture fleeced garments or novelties; to start Jan. 1.

New York. A. A. Kahil, Inc., new plant at 4 Washington Pl., with 8 machines on knitted silk fabrics.

New York. Lace Knitting Mills, 172 East 116th St., new plant on silk and worsted reefers; 6 Raschel machines and 6 knitting looms.

New York. The New Departure Knitting Corp.; formed for purpose of manufacturing full fashioned underwear on patented machinery; office at 255 Fourth Ave., E. A. Clements, president of the Globe Knitting Works, Grand Rapids, Mich., is president of the new company.

New York. Rheinauer-Roth Knitting Mills; new plant at 42 West 18th St. on knitted fabrics.

New York. Sioux Knitting Mills, 3291 3rd Ave.; established plant with 25 knitting and 12 sewing machines on women's outerwear.

New York. The States Hosiery Mfg. Co., 296 East 157th St.; start new plant for men's and women's sport hose; 10 knitting machines, 2 ribbers, 2 loopers and 2 sewing machines; L. J. Friedman, superintendent.

New York. Trabulsi Knit Fabrics Co.; new plant on mufflers, etc.; 8 Raschel machines, 10 sewing machines.

New York. Wang & Lavenda; new mill at 495 East 172nd St., on sweaters and bathing suits; 3 knitting and 2 sewing machines.

Rome. W. E. Allison has organized the W. E. Allison Co., Inc.; underwear (Mr. Allison, formerly with Williamson Bros. Mfg. Co.), capital, $30,000; J. M. Strawbridge, president.

North Carolina, Cherryville. Josephine Knitting Mills; erect new mill.

Hickory. Real Knitting Mills; new mill; 22 knitting machines; 4 ribbers and 4 loopers.

High Point. Robbins Knitting Co.; incorporated with $150,000 capital; erect building, 150 x 60 feet, two stories; to be equipped with 120 knitting machines, 25 loopers and 5 sewing machines; C. C. Robbins, pres. and treas.

No. Wilkesboro. The Sweater Co.; P. J. Braeme, prop.; new mill, with 2 knitting and 2 sewing machines.

Ohio, Warren. Clark Knitting Co., Inc.; capital, $5,000; erect two-story frame building, 40 x 30 feet; 8 knitting machines and 2 sewing machines; mercerized hosiery.

Pennsylvania, Espy. Charles C. Barger Co.; capital, $50,000; Charles C. Barger, president; Joseph A. Speer, treasurer; erect new plant, 130 x 38 ft.; infants' cotton ribbed hosiery; 20 knitting machines; 14 ribbers; three loopers.

Harrisburg. Scott Knit Hosiery Co.; new mill with $25,000 capital; operate 20 knitting machines and two loopers; C. L. Scott, president; F. C. Sites, secretary.

Harrisburg. Twin-Tex Silk Hosiery Co.; capital, $25,000; H. A. Bitner, president; H. E. Smeltzer, treasurer; 15 knitting and two sewing machines; two loopers. Ladies' and men's silk and men's mercerized hosiery.

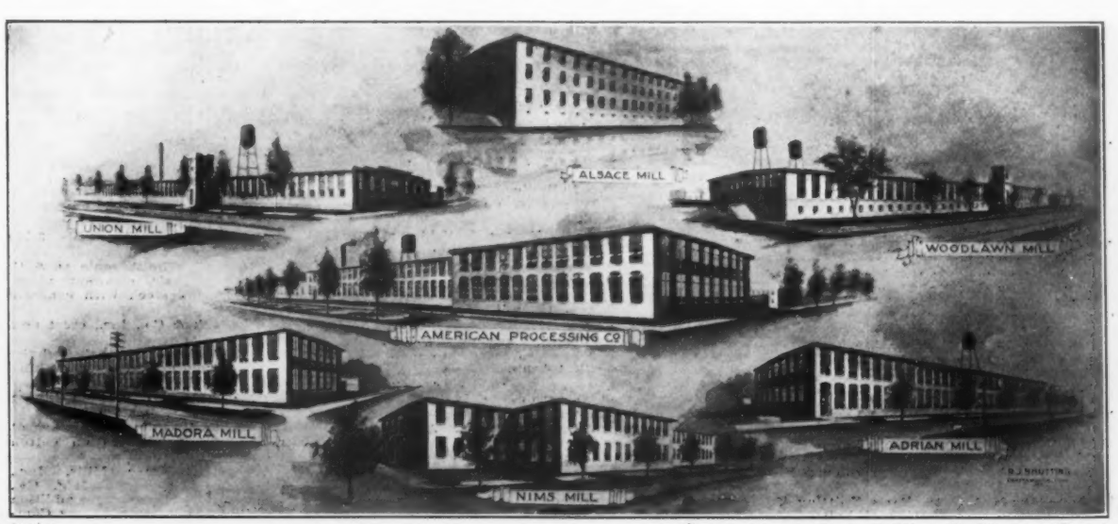
Hershey. Magrin Hosiery Co.; capital, $10,000; F. J. Magrin, president; J. C. Ferrucci, treasurer; erect new plant 80 x 200 ft., three stories; full fashioned women's hose; 6 knitting machines; one ribber; one looper; four sewing machines.

Lebanon. H. W. Anthony; purchased tract of land, 340 x 170 ft.; erect new hosiery mill to be five stories.

Montgomery. Valley Knitting Co., Inc.; capital, $20,000; start new plant on women's novelty hosiery; E. W. Hull, president; and A. P. Hull, Jr., treasurer.

Penbrook. The Penbrook Knitting Co. erects new mill, one story 30 x 100 feet; operating 30 knitting machines, 5 loopers and 6 ribbers; capital is $10,000; Dr. J.

New Plant of Cambria Silk Hosiery Co., Philadelphia. Wm. Steele & Sons Co., Philadelphia, Architects, Engineers and Constructors



(Drawing by R. J. Shutting, Chattanooga, Tenn.)

Mills of American Yarn & Processing Co., Mt. Holly, N. C., Spinners and Mercerizers of High Grade Combed and Carded Yarns

L. Lenker, president and I. L. Unger, secretary and treasurer.

Philadelphia. Apara Knitting Mills, new mill on men's and women's alpaca and camel's hair mufflers and golf hose; J. Forstatt, proprietor.

Philadelphia. Apex Hosiery Co.; erect new six-story concrete building to cost $220,000, 90 x 115 ft., with toilet and stair tower, 55 x 22 ft.

Philadelphia. Delaware Knit Goods Co.; start branch at 24 Bank St., knit goods of all kinds.

Philadelphia. Gladstone Knitting Mills; lease second floor at 44 N. Third St., for new mill.

Philadelphia. Harrowgate Knitting Mills, 4309 North Lawrence St.; establish new mill with six knitting machines; capital, $18,000; G. B. Smith, president and treasurer.

Philadelphia. J. Allen Locke Co.; erect one-story mill, 4945 Mulberry St., to be equipped as hosiery mill.

Philadelphia. Lockton & Birkman; organized for the manufacture of fine hosiery; plant equipped with 50 knitting machines, located at Frankford Ave. and Margaretta St., Frankford.

Philadelphia. McCallum Hosiery Co.; erect new mill, three stories, 85 x 175 ft.

Philadelphia. Ray Knitting & Mfg. Co.; infants' and childrens' hand crochet goods.

Philadelphia. Unique Knitting Co.; erect new four-story mill at Fifth and Master Sts., the building to be 100 x 67 ft.

Reading. Noe-Equi Hosiery Mills, Inc.; organized with capital of $300,000; Edward Glasser, president; David E. Purcell, treasurer; first unit of plant to be 85 x 225 ft., two-story, with a 30 foot square boiler house and 50 foot stack; equipped with 200 knitting machines, 20 ribbers, 18 full fashioned, 25 sewing machines, 30 loopers.

Reading. Oakbrook Hosiery Mills, Inc., organized; succeed Oakbrook Hosiery Mill; Isaac C. Eberly, president and treasurer; women's full fashioned silk hosiery; 30 knitting, 20 looping and 15 sewing machines.

Reading. Starkist Hosiery Co.; 100 knitting machines on women's seamless plain and fancy hosiery.

Schuylkill Haven. Crown Hosiery Mills; capital, $10,000; Jos. H. Le Van, president; E. S. Miller, treasurer; erect new mill; half hose; 16 knitting machines, 4 loopers and 3 ribbers.

Shamokin. F. A. Welker & Sons; children's and women's hose; erect 30 x 40 foot two-story building; 10 knitting and 10 ribbing machines.

Spring City. Tex-Step Hosiery Co. starts new plant with two knitting machines; P. L. Cook, proprietor.

Stowe. The Quality Knit Underwear Co. new mill, two stories, 40 x 60 feet; on women's underwear; H. J. Kilme, president and manager.

Wernersville. Wernersville Hosiery Mill; Frank H. Hain, owner, men's and women's hosiery; 39 knitting machines; three ribbers; six loopers; three sewing machines.

York. George Sowers erecting two-story, 80 x 110 foot building, for hosiery manufacture.

Tennessee, Chattanooga. Volunteer Knitting Mills; 22 knitting and 50 sewing machines; men's and boys' union suits.

Jackson. B. J. Priester of Paducah, Ky., establishes branch mill, as Priester Hosiery Mills, 120 by 160 feet; equipment 200 knitting machines, 125 ribbers, 25 loopers.

Knoxville. Silk Tie Knitting Co., Inc., new plant with seven knitting machines; one sewing machine; D. H. Spruill, president; I. T. Bean, treasurer.

Pinewood. Pinewood Knitting Mills establish branch plant at Waverly; also consider branches at Mount Pleasant and Hohenwald.

Utah, Provo. Jenkins Knitting Mill Co. organized by G. M. Taylor, president and Clayton Jenkins, secretary treasurer; lease location for mill; will install machinery in 1923.

Virginia, Phoebus. American Boys' Stocking Mill; capital, $150,000; new plant with 16 knitting machines; I. M. Grant, president.

Washington, Seattle. Seattle Knit Goods Co.; taken over by K. & K. Knitting Co.; capital, $20,000; men's, women's and children's sweaters.

West Virginia, Princeton. Princeton Hosiery Mills Co.; L. G. Borsling, president; L. H. Parlouis, treasurer; erecting two-story 48 x 118 foot building for new plant; capital, $75,000; to be equipped with 62 knitting machines and finishing plant.

Wisconsin, Madison. Lawrence Giese; 14 So. Orchard St.; new hosiery mill with 12 machines to operate under name of Norman Hosiery Co.; Mr. Giese, president and treasurer.

Omro. North American Textile Corp.; capital, $100,000; new plant on hosiery, operating 76 knitting machines, 25 loopers and five ribbers and two sewing machines; dyehouse; G. W. Kalweit, president; J. G. Rice, treasurer; general office moved from Milwaukee to Omro.

Waupun. Vogue Hosiery Co.; capital, $50,000; new plant on jacquard top socks and jacquard three-quarter hose; ladies' silk hosiery operating 16 German knitting heads; Arthur Hanisch, president; Norbert Hackett, treasurer.

Canada, Burford, Ont. Paris Knitting Co., Ltd.; new plant operating 45 knitters; 12 ribbers and 10 loopers, four sewing machines; capital, $150,000; N. Dell, president, S. Chase, secretary-treasurer.

Guelph, Ont. Lander Bros., Ltd.; established new knitting plant with 12 knitting machines on silk and sport hose; capital, $150,000.

St. Catherine's, Ont. Dent-Griffin, Ltd.; new plant on silk gloves.

St. Hyacinthe, Que. Canadian-U. S. Knitting Co.; starts new mill on general line of knitted piece goods; affiliated with U. S. Knitting Co., Pawtucket, R. I.

NEW SILK MILLS

California, San Francisco. Pacific Silk Mills, Inc., organized with capital of $500,000; plans erection of new mill the first plant to cost $50,000; represented by Alan C. Van Fleet, atty. First National Bank Bldg., San Francisco, Cal.

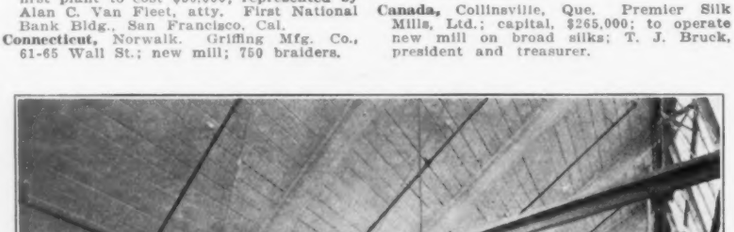
Connecticut, Norwalk. Griffing Mfg. Co., 61-65 Wall St.; new mill; 750 braiders.

Quakertown. Ewing-Thomas Silk Co.; organized with capital of $200,000, and operating plant in leased quarters; J. H. Thomas, president, and M. Ewing, treasurer.

Tennessee, Chattanooga. Magnolia Silk Mills; capital, $100,000; starts new silk throwing plant; lease location while new plant is under construction; T. W. Fred, president, of the Davenport Hosiery Mills, is interested.

Virgina, Norfolk. Leslie E. Jones begins manufacture of women's silk hosiery at 3915 Gosnold Ave.

Canada, Collinsville, Que. Premier Silk Mills, Ltd.; capital, $265,000; to operate new mill on broad silks; T. J. Bruck, president and treasurer.



Interior View, New Weave Shed of Ardross Worsted Co., Frankford, Philadelphia. Super-Span Sawtooth Construction Used with Which Floor Areas Up to 6,000 Square Feet Are Obtainable Without a Post. Buildings of 100 Foot Span Can Be Constructed of Any Length Without the Use of Columns. The Ballinger Company, Philadelphia and New York, Architects and Engineers

New Haven. The Velvet Textile Corp.; erect new building at West Haven; one story, 156 x 200 ft. with power plant and garage adjoining estimated to cost $100,000; 100 looms.

Maryland, Baltimore. James P. Hooper Mfg. Co., organized for manufacture of art silk; capital, $375,000; expected to start operations about Oct. 1.

Massachusetts, Holyoke. Wm. Skinner & Sons; new five-story, 80 x 200 ft. plant accommodating 500 looms, 7,000 spindles; cost about $100,000.

New Jersey, Belmar. Atlantic Silk Mills Co., Inc., braids, chenille, etc.; new 47 x 115 ft. mill; W. E. Carpenter, president and general manager; L. E. Newman, treasurer.

Clifton. Cupra, Inc., artificial silks; new two-story 90 x 240 ft. plant; R. P. Dicks, president; F. T. Tillton, treasurer; capital, $500,000.

North Bergen. Combier & Cie; new mill on broad silks; 1,800 spindles, 82 looms; A. Drebon, superintendent.

Passaic. Garth Mfg. Co.; artificial silk tops; capital, $100,000; purchased Tuxedo Mills for new plant; Alpha Garth, president.

Passaic. New Era Silk Co.; starts new warping and winding plant in Waterhouse Mill.

Paterson. Filmore Silk Mills, 15 Van Houten St.; capital, $10,000; new 12-loom silk mill; A. Lissek, president; H. Maisel, treasurer.

Paterson. Waverly Warping & Winding Co.; organized by J. & D. Shaw; new plant.

West New York. Palisade Silk Mills, 763 Dewey Ave.; new plant on commission weaving; six looms.

New York, Brooklyn. Moster & Feldman, new silk throwing mill, 189 Throop Ave.; 1,000 spindles.

Luzerne. The Korrect Kore Line Co.; establishes plant on silk fish line; equipment, 25 machines; Knox Bishop is general manager.

Palatine Bridge. The Underwood Silk Mill, established by Henry Underwood, to manufacture fibre silk fabrics.

Pennsylvania, Altoona. Altoona Textile Co.; capitalized at $100,000, to build new mill and manufacture broad silks; equipment will comprise 100 looms; August Hafner, treasurer and manager.

Allentown. Soleiac Silk Co.; capital, $75,000; establish plant on third floor of Orcurto Mill Building; equipment of Widmer Silk Co. purchased; E. A. Soleiac, proprietor.

Bethlehem. R. K. Laros Silk Co.; erect new silk throwing plant, three story, 65 x 200 ft.

Dunnville, Ont. Dominion Fabrics, Ltd.; capital, $250,000; ten looms on art silk and ratine dress goods; Thomas Camelford, president; Alexander Camelford, treasurer.

NEW MISCELLANEOUS MILLS

Georgia, Griffin. Lowell Bleachery, South; erect 50 tenement houses, preparatory to establishing plant.

Massachusetts, Charles River. Charles River Bleachery, Inc.; organized with capital of $100,000; Walter S. Lawson, president; purchased the property of the Needham Tire Co.; operations expected to start early in 1923.

East Pepperell. The Rheabat Corp.; capital, $500,000; purchased and remodeled local paper mill; will eventually install 150 looms; will process spin and weave the "Rheabat" fibre; Charles Batra, president, and G. B. Keane, treasurer.

Lowell. Whiteley Bleachery; bleach and finish cotton piece goods; Howard L. Whiteley, proprietor.

Missouri, Kansas City. American Mattress Co.; J. M. Kantor, proprietor; one garnett, two pickers, one filling machine.

New Jersey, Belleville. D. A. Higgins & Sons, dye and bleach woolen and worsted yarns; new plant with 8,000 pounds daily capacity.

Gloucester. Forrest Mercerizing Co.; yarn mercerizing; new plant.

Jersey City. Paragon Piece Dye Works, 45 Cornelison Ave.; new finishing plant on silk and wool jersey.

Millington. Asbestos Materials Co.; acquire and improve plant of Bateman & Co.

Newark. Clark Thread Co.; bleachery, lime house and power house erected on part of 180 acre tract at Bloomfield; also new welfare hospital building.

West New York. Continental Dyeing & Finishing Co., Inc.; new plant to dye and finish broad silks; capital, $15,000; J. Thomas, president; Harry Ruvo, secretary-treasurer.

New York, Brooklyn. Brooklyn Yarn Dye Co.; new plant and boiler house, one story, 200 x 237 ft.; capital, $100,000; Mathais Axle, president; A. J. Adams, treasurer and buyer; to bleach and dye woolen and worsted yarns.

Brooklyn. Erie Dyeing & Processing Co.; establishes new plant at 1 Nassau Ave. to handle both yarns and cloth; E. W. Seng is in charge.

North Carolina, Spindale. Spinners' Processing Co.; erect two-story mill, 137 x 235 ft.; installation of warp mercerizing machinery.

Oregon, Salem. Willamette Valley Flax & Hemp Corp.; capitalized for $100,000; acquire mill at Turner.

Pennsylvania, Philadelphia. La France Art Co.; capital, $100,000; Bernard Davis, president; E. L. Battersby, treasurer; textile novelties in picture form.

Philadelphia. Majestic Silk Hosiery Dyeing Co.; erect new dyehouse; install new dyeing vats, drying frames and winders.

Spring City. Superior Dye Works; new plant for dyeing cotton yarn; J. P. Wainwright, treasurer.

Rhode Island, Central Falls. Lyonnaise Silk Dye Works, Inc.; new plant operating in leased building; J. Chausable, president, and A. Montchal, treasurer.

Hope Valley. Rhode Island Linen Co.; new plant on linen yarn; also does woolen picking and carding; S. Siswick, president and treasurer; C. H. Brown, agent.

Providence. Eddy Finishing Co.; organize for establishment of new plant; H. A. Classon and Chester L. Eddy interested.

Providence. Princess Yarn Co.; incorporates for $150,000 to mercerize cotton yarns by new process; E. A. Risley, treasurer and manager.

Woonsocket. McCrodi Fibre Co.; new one-story, 60 x 150 foot plant.

Woonsocket. Peerless Dyeing & Finishing Co.; capital of $100,000; establishes new finishing plant by remodelling existing buildings and erecting addition; A. E. Bonin is president and W. E. Lamarine is treasurer.

South Carolina, Greenville. Southern Bleachery; organized with $1,000,000 capital; secured large site on Enoree River; will specialize on fine cotton goods; H. R. Stephenson will be manager.

Virginia, Danville. Riverside & Dan River Cotton Mills; erecting bleachery and finishing plant, four stories, 300 x 148 feet, to cost about $450,000; will erect six-story storage building for Riverside Mill.

Washington, Wallawalla. The Pantatorium Dye Works; new 68 x 120 foot plant.

Wisconsin, Milwaukee. Phoenix Knitting Mills, Inc.; new six-story, 120 x 80 foot dyeing and finishing plant to cost $350,000.

Canada, Drummondville, Que. Dominion Silk Dyeing and Finishing Co., Ltd.; new building; capital, $1,000,000; C. L. Auger, president; I. A. Post, treasurer.

Enlargements and Improvements

COTTON

Alabama, Huntsville. Merrimack Mfg. Co. started building of a $50,000 sewerage system in the mill village; also built 108 operatives' houses; adds 3,000 spindles.

Lafayette. Skenandoa Cotton Co., Utica, N. Y., purchases the Lafayette (Ga.) Cotton Mills, operating 10,000 spindles; will enlarge the plant and use the product to supplement the present production of the Utica plant.

Mobile. Mobile Cotton Mills; adds 3,500 spindles.

Connecticut, Ansonia. The Ansonia O. & C. Co.; addition to their cleaning plant, 30x196 ft., brick and steel, with concrete flooring.

Groton. Max Pollack & Co., Inc., erect new dyehouse.

New Britain. E. C. Carter & Son leased the plant of the Pinches Mfg. Co.; making considerable alterations.

New London. New England Carpet Lining Co.; one-story addition, 48 x 100 ft.

Norwich. Adams & Manning; buy plant at 30 Thames St.; 120 braiders on cotton cords.

Putnam. Nightingale-Morse Mills, Inc., plant bought by the Adams Mfg. Co., North Scituate, R. I.; erect new addition to accommodate 300 looms. Adams Company contemplate moving its entire plant to Putnam during the summer of 1923.

South Norwalk. J. & J. Cash, Ltd., 60 x 132 ft. addition to weave shed, brick and steel construction.

West Haven. American Mills Co.; built new 60 x 90 ft. addition.

Westport. The Lees Mfg. Co. erect three-story 150 x 50 ft. brick and mill construction addition.

Delaware, Wilmington. Joseph Bancroft & Sons Co.; erect five-story brick and steel construction addition to plant, 60 x 120 ft.; one-story addition, 45 x 45 ft., at Rockford.

Georgia, Athens. Star Thread Mills; build two-story addition, 60 x 100 ft.

Athens. Union Thread Co.; White City Mills purchased by O. W. Bowen and W. W. Crews, of Jewel, Ga.; capacity doubled by new owners by additions of 1,400 spindles and accompanying machinery; Bowen-Crews Co. organized and incorporated with $500,000 capital.

Augusta. Globe Cotton Mills install 128 additional looms.

Augusta. Sibley Mfg. Co.; construct new one-story dye house; disposed of bond issue for further improvements.

Columbus. Swift Spinning Mills; erect 100 x 200 ft. addition, brick, concrete and steel.

Dalton. Elk Cotton Mills; erect two additions, 160 x 200 ft. and 40 x 200 ft., respectively; install 7,000 additional spindles.

Eatonton. Eatonton Cotton Mills; erect one-story addition containing 20,000 ft. of floor space.

Griffin. **Griffin Mfg. Co.**; added 3,000 spindles and 102 looms.

LaGrange. **Dunson Mills**; extension of weave shed, 111 x 132 ft., two stories.

Manchester. **Manchester Cotton Mills**; erect new community building for employes to contain auditorium, gymnasium, lockers and showers.

Quitman. **Western Reserve Cotton Mills**; addition planned for Quitman Mill; Millen, Ga., plant started operations in June, later extending force to both night and day operations; installed $75,000 worth of new machinery in August.

Trion. **Trion Co.**; erect three large cotton warehouses, each three stories high, with basement.

Louisiana, New Orleans. **Maginnis Cotton Mills** erect additional building, 110 x 125 ft., brick and concrete; install 100 40-inch automatic looms.

Maine, Lewiston. **Bates Mfg. Co.**; erecting four-story building, 370 x 170 ft., to replace several small buildings, to cost in the neighborhood of $550,000.

Lewiston. **Hill Mfg. Co.**; installed six new water wheels; erected new power house.

West Kennebunk. **The R. W. Lord Co.**; erect one-story 60 x 30 ft. addition.

Massachusetts, Adams. **Berkshire Cotton Mfg. Co.**; erect new building, brick construction, one-story high, 170 x 50 ft.; convert old iron foundry building into community house for employes; acquired additional property for the creation of a recreation centre; erect gymnasium, 80 x 80 ft.

Boston. **The John West Thread Co.**; new boiler house and mill extension.

Fall River. **American Thread Co. (Kerr Mills)**; add two stories to its bleaching and mercerizing building to give additional 54,000 sq. ft. floor space; to cost about $125,000.

Fall River. **Sagamore Mfg. Co.**; two-story 75 x 96 ft. addition.

Fall River. **Stephens Mfg. Co.**; three additions, 43 x 55 ft., 18 x 31 ft. and 36 x 25 ft., respectively; also two-story addition to bleachery.

Housatonic. **Monument Mills**; erect two-story addition to bleachery.

Indian Orchard. **Indian Orchard Co.** new boiler house, cost $75,000.

Lowell. **Boott Mills**; erect one-story hydro-electric generating plant.

Westport. **Westport Mfg. Co.**; erect additional storage building, two stories, 60 x 100 ft.

Minnesota, Minneapolis. **Fulton Bag & Cotton Mills**, Atlanta, Ga.; erecting branch plant, 245 x 400 ft., to cost $230,000.

New Hampshire, Dover. **Cocheco Dept. of Pacific Mills**; 44 x 80 ft. addition to picker room.

Nashua. **Nashua Mfg. Co.**; 50 x 140 ft. addition.

Salmon Falls. **Salmon Falls Mfg. Co.**; new hydro-electric power development; common stock increased to $1,400,000; power project to cost $250,000.

New Jersey, Beverly. **John A. Bidwell Co.**, new building, 40 x 100 ft.; buy looms of Corkran Fitzgerald Mfg. Co., Germantown, Pa., and install 46 of them in new plant.

New York, Auburn. **The Cayuga Linen & Cotton Mills** erect additional story to their plant.

Corona. **Corona Braid Works** erecting 50 x 200 ft., two story addition.

Lockport. **The Lockport Cotton Batting Co.** rebuilt Mill No. 1, destroyed by fire Feb. 9, 1922.

North Carolina, Albemarle. **Wiscasset Mills**; erect five-story warehouse, 70 x 168 ft.

Burlington. **Aurora Cotton Mills**; erect addition, 52 x 163 ft., two stories high, and basement.

Burlington. **Stevens Mfg. Co.**; install 94 automatic looms, 70 being replacements.

Charlotte. **Highland Park Mfg. Co.** install 50 new looms in Mill No. 1; erect 350 h. p. boiler.

China Grove. **China Grove Cotton Mills** erect new building, 125 x 454 ft.; erect 50 tenement houses.

Concord. **Brown Mfg. Co.**; erect 20 tenement houses; addition to the dyehouse with complementary machinery.

Concord. **Gibson Mfg. Co.**; add 190 looms.

Concord. **Locke Cotton Mills Co.**; install additional dyehouse machinery; build a power transmission line and install additional looms.

Dallas. **Dorothy Mfg. Co.** adds 3,600 ring and 1,920 twister spindles.

Durham. **Morven Cotton Mills**; incorporated with $200,000 capital; purchased Lawrence Cotton Mills, Inc.; erect three-story building, 70 ft. square, to accommodate 100 looms.

Gastonia. **Flint Mfg. Co.**; erect two-story, 136 x 471 ft. building, equipped with 12,000 spindles and accompanying machinery.

Gastonia. **Loray Mills**; erect two-story addition, 110 x 150 ft., for additional spindles.

Gastonia. **Priscilla Spinning Co.** erecting concrete building to accommodate 25,000 spindles.

Gastonia. **Ruby Cotton Mills, Inc.**; reorganize; build 80 x 92 ft. brick building.

Gastonia. **A. M. Smyre Mfg. Co.** erect 100 cottages; build two-story, 300 x 125 ft. brick structure, equipped with 15,000 ring and 7,500 twister spindles.

Gastonia. **Trenton Cotton Mills**; erect one-story addition, 50 x 150 ft.; add 1,680 ring and 1,000 twister spindles.

Forest City. **Alexander Mfg. Co.** erect addition, 50 x 125 ft.; install 21 cards and 5,200 spindles.

Haw River **Holt-Granite Mills Co.**; install 150 additional looms.

Hickory. **Highland Cordage Co.**; erects mill, 80 x 420 ft.; also 40 houses; erect 130 x 200 ft. warehouse.

Hickory. **A. A. Shuford Mills Co.**; erect 80 cottages for operatives; will erect new mill at Granite Falls.

Hillsboro. **Eno Cotton Mills**; erect addition, for cloth and shipping room, 103 x 192 ft.; extend weave shed; erect 30 operatives' cottages.

Kannapolis. **Cannon Mfg. Co.** erect new warehouse; 12 tenement houses, and addition to Y. M. C. A. building; erect post office building; equip 5,000 looms with individual drive; erect new filtering plant.

King's Mountain. **Phoenix Mills Co.**; install 100 looms.

Lexington. **Erlanger Cotton Mills Co.**; erect warehouse, 68 x 229 ft., one story.

Mooresville. **Mooresville Cotton Mill** erects addition, one story, 76 x 180 ft.; erects 50 x 100 ft. cotton warehouse addition.

Mount Holly. **American Yarn & Processing Co.**; enlarge Alsace Mfg. Co. by 2,000 spindles.

Raleigh. **Caraleigh Mills Co.** erect one-story weave shed, 159 x 403 ft.; 40 x 100 ft. two-story extension.

Ramseur. **Columbia Mfg. Co.** install 132 automatic looms.

Randleman. **Central Falls Mills, Inc.**, add 6,000 spindles; add a number of cards, feeders and twisters.

Randleman. **Deep River Mills** add 216 looms.

Reidsville. **Edna Cotton Mills**; will build cloth room, cotton warehouse and finishing plant.

Roanoke Rapids. **Patterson Mills Co.** erect addition, two stories, 100 x 140 ft.; install 250 automatic gingham looms.

Rockingham. **Hannah Pickett Mills**; erect two-story addition for weaving department, make room for 300 additional looms.

Rockingham. **Roberdel Mfg. Co.**; erect 135 x 450 ft. addition; install 500 looms in No. 1 plant, 280 looms to be added.

Salisbury. **Vance Cotton Mills** erect two-story extension, 108 x 138 ft.; install 200 narrow looms.

Saxapahaw. **White, Williamson Co.**; changed water power plant, replacing three old water wheels with modern equipment.

Spindale. **Spindale Mills Co.**; erect new building, 60 x 75 ft.

Spindale. **Stonecutter Mills**; erect 25 new houses; add 275 looms to equipment.

Pennsylvania, Philadelphia. **Collins & Aikman Co.**; erect six-story reinforced concrete mill addition, 75 x 120 ft.

Philadelphia. **L. H. Gilbner**; erects concrete warehouse and boiler plant at cost of $75,000.

Philadelphia. **Hensel-Colladay Co.**; erect new plant.

Philadelphia. **Wm. F. Kreiss Co.**; erect new two-story mill, 50 x 145 ft.

Philadelphia. **La France Textile Co.**; purchased properties at 1615-21 Unity St., 4413-4427 Frankford St. and 4412-4428 Paul St.

Philadelphia. **Fred Pearson & Co., Inc.**; erect new five-story mill, 62 x 170 ft.

Philadelphia. **United Tapestry Mills, Inc.**; bought two-story building at 2046 East Erie Ave. and installed equipment for the operation of mill.

Reading. **Joseph Bancroft & Sons** erect one-story weaving shed addition; erect three-story addition, 419 x 50 ft.; office building, 36 x 42 ft.; alterations to boiler house.

Reading. **Reading Towel Mfg. Co., J. R. Giebel** president, purchased mill of Glasser Hosiery Co., at 13th and Muhlenberg Sts., and remove machinery into it.

Scranton. **Scranton Lace Co.**; new power house.

Rhode Island, Anthony. **Coventry Co.** erect 60 x 100 ft. addition.

Esmond. **Esmond Mills** erect addition.

Pawtucket. **Hope Webbing Co.** lets contract for brick, six story, 85 x 192 ft. addition.

Pawtucket. **Providence Braid Co.**; new two-story, 90 x 104 ft. mill.

Westerly. **Westerly Textile Co.**, new five-story, 35 x 50 ft. addition; installs additional looms.

South Carolina, Anderson. **Brogon Mills** install 12 new spinning frames, making total spindleage over 30,000.

Bowling Green. **Bowling Green Spinning Mill, Inc.**; capital $100,000 to continue operation of plant formerly Reynolds Cotton Mill Co.; 60 x 174 ft. addition erected; 5,000 new spindles added; 10 houses for operatives.

Calhoun Falls. **Calhoun Mills** building addition to weave shed; will add 15,000 spindles and new looms; also plan new power plant.

Chester. **Baldwin Cotton Mills** install 100 40-inch looms; capital increase to $1,100,000.

Clinton. **Clinton Cotton Mills** add 2,000 spindles and 200 looms; also 25 operatives' houses.

Gaffney. **Gaffney Mfg. Co.** builds 25 operatives' houses and contracts for 13,000 spindles.

Greenville. **Dunean Mills** erect new 50 x 165 ft. quiller building.

Greenville. **Victor-Monaghan Co.**; three-story, 132 x 120 ft. extension to Monaghan plant; new cloth storehouse for Seneca plant; also additional operatives' houses.

Honea Path. **Chiquola Mfg. Co.** erects 132 houses for operatives at a cost of $225,000.

Lando. **Manetta Mills**, 60 x 160 ft. addition; also 5,000 spindles and 100 looms.

Laurens. **Watts Mills**; 90 x 100 ft. addition for slashing and drawing-in; install 3,500 twister spindles.

Newberry. **Newberry Cotton Mills** install 80 deliveries of drawing.

Ninetysix. **Ninetysix Cotton Mill**; new cotton warehouse; also office building and schoolhouse; also power plant; add 46 houses to village.

Pelzer. **Pelzer Mfg. Co.** add 46 92-inch looms; also additional electric generators.

Piedmont. **Piedmont Mfg. Co.**; power plant remodelled and enlarged.

Rock Hill. **Aragon Cotton Mills** build new community house.

Union. **Union-Buffalo Mills Co.** add 45 houses to village.

Ware Shoals. **Ware Shoals Mfg. Co.** add 75 houses to mill village; erect new 60 x 100 ft. power house and two-compartment cotton warehouse; also swimming pool for employes.

Tennessee, Chattanooga. **Standard-Coosa-Thatcher Co.** completed installation of spinning equipment in Mill No. 2.

Knoxville. **Cherokee Spinning Co.** erect two-story, 184 x 210 ft. addition to house 250 looms; will also build bleachery and dyehouse; capital increased to $1,100,000.

Texas, McKinney. **Texas Cotton Mill Co.**; 36 new houses in the new village; about to extend weave shed 180 ft.; increase capital to $1,200,000.

Virginia, Altavista. **Altavista Cotton Mills** erecting two additions, 103 x 125 ft. and 100 x 130 ft.; to add 300 looms and spinning equipment.

Wisconsin, Baraboo. **Baraboo Towel Mills**; erect hydro-electric plant.

Canada, Welland, Ont. **Empire Cotton Mills, Ltd.**; erect 165 x 365 ft. addition; install 140 40-inch looms.

Valleyfield, Que. **Montreal Cottons, Ltd.**; new 100 x 120 ft. waste house, four stories.

WOOL

California, Eureka. **Eureka Woolen Mills**; awarded contract for the erection of two-story addition.

Connecticut, Danbury. **Mallory Hat Co.**; new six-story plant, including three-story extension, 60 x 100 ft., to cost about $100,000.

Hanover. **Airlie Mills, Inc.**, erected addition, 226 x 62 ft., brick and steel, with saw-tooth roof, two stories.

Norwich. **American Woolen Co.** purchased 21 houses for operatives and also planned the construction of a number more to cost in the neighborhood of $40,000.

Stafford Springs. **Cyril Johnson Woolen Co.**; two-story, 45 x 100 ft. storage warehouse, brick, mill construction; new building, 240 x 140 ft., to cost $100,000 three stories.

Illinois, Chicago. **Olson Rug Co.**; erect new five-story plant, 84 x 185 ft.; install new rug looms.

Indiana, Seymour. **Seymour Woolen Mills**; construct three-story addition, 60 x 60 ft.

Kentucky, Mayfield. **Mayfield Woolen Mills**; erect one-story addition, 80 x 170 ft., brick and steel; also erect one-story building, 72 x 200 ft.

Maine, Dexter. **Amos Abbott Co.**; reconstruct part of mill destroyed by fire.

Pittsfield. **American Woolen Co.**; three-story mill addition, 50 x 90 ft.

Sanford. **Jagger Bros.**; erect addition, 65 x 65 ft., two-story and basement high.

Skowhegan. **Maine Spinning Co.** erect three-story, 84 x 200 ft. new building, brick.

Massachusetts, Caryville. **Taft Woolen Co.**; 62 x 90 ft. addition to picker house.

Clinton. **Bigelow-Hartford Carpet Co.**; erect additional building and installing additional looms; erect new head house, 100 x 114 ft., four stories, attached to which is new dye house, one story, with monitor roof, 275 x 100 ft.

East Douglas. **Hayward Woolen Co.**; three additions; one-story 125 x 50 ft. dye house, three-story 60 x 70 ft. dryer room, two-story 90 x 70 ft. weaving and picker shed; also brick addition to boiler house.

Jefferson. **Jefferson Mfg. Co.** erect brick one and two-story addition to dye house.

Lawrence. **Walworth Bros.**; three-story, 50 x 130 ft. brick addition.

Lowell. **Massachusetts Mohair Plush Co.**; addition to finishing plant, 140 x 40 ft., two stories.

Newton. **Shepherd Worsted Mills**; erect one-story, 42 x 142 ft. dyehouse.

North Andover. **Sutton's Mills**; two-story, 75 x 100 ft. addition; to add 25 new looms.

Palmer. **M. J. Whittall Associates**; two-story, 70 x 210 addition and one-story storage building.

Pittsfield. **Berkshire Woolen Co.**; erect additional story to its office building; erect three-story addition, mill construction, with basement, 100 x 60 ft.

Pittsfield. **Pontoosuc Woolen Mfg. Co.** erect three-story, 50 x 80 ft. storehouse addition.

Canadian Mills for Which Extensive Buildings Have Been Erected by W. J. Westaway Co., Ltd., Hamilton, Ontario

Southbridge. Southbridge Woolen Co.; sold Hotel Hamilton, which it had owned for 30 years; erect steel fireproof one-story, 120 x 140 ft. storehouse at cost of $60,000; erect another building, 100 x 35 ft., one-story high.

Westford. Abbott Worsted Co.; erect three-story addition, brick, mill construction, 216 x 88 ft.; erect eight single and double houses for employes.

Michigan, Eaton Rapids. John Davidson Woolen Mills, Inc.; builds additional plant unit.

Eaton Rapids. Eaton Rapids Woolen Mills build three-story, 70 x 150 ft. plant.

New Hampshire, Dover. Sawyer Mills of American Woolen Co.; rebuild portion of plant damaged by fire.

New Jersey, Passaic. Passaic Worsted Spinning Co., adding 10 French cards and 25 French combs; equipment, 24 worsted cards, 18 worsted combs, 6 art silk cards, 6 art silk combs and 20,000 worsted and art silk spindles.

New York, Auburn. Firth Carpet Co. erecting new weave shed; also extension to dyehouse, machine shop and power plant; cost about $150,000.

Brooklyn. Union Spinning Co. removes to new quarters at 370 Hart St.

Newburg. Wm. Crabtree & Sons Co. erect $100,000 two-story addition.

Rensselaer. Wm. Barnett & Son, Inc., erect large addition to be used as warehouse; absorb Hudson River Waste Co.

Oregon, Portland. Brownsville Woolen Mills remodelled and reopened by J. L. Bowman.

Pennsylvania, Chester. Irving Worsted Co.; erect two new buildings; 64 x 100 ft. and 52 x 64 ft., respectively.

Clifton Heights. Kent Mfg. Co.; erect new mill, 44 x 120 ft., four-story; install new machinery, including twisters, cards, dryers, etc.

Doylestown. Clear Spring Worsted Mills; installed new dye house.

Philadelphia. Alva Carpet & Rug Co.; erect three-story and basement addition, 50 x 150 ft.

Philadelphia. Charles P. Cochrane Co.; erect three-story brick addition, 40 x 200 ft.

Philadelphia. Dearnley Bros. Worsted Spinning Co.; took title to group of mill buildings; erect three-story and basement addition.

Philadelphia. Roosevelt Worsted Mills; erect addition to supply 12,500 ft. additional floor space, 60 x 95 ft.

Philadelphia. John B. Stetson Co.; erect four new additions, two of which are eight stories in height; another to be used for general operating service and the fourth as a garage; to cost in the neighborhood of $450,000.

Rhode Island, Providence. Colwell Worsted Mills erect additional mill building, two stories, 50 x 200 ft.; also bleach and dyehouse, power house, shipping room and machine shop.

Providence. Wanskuck Co. increases carding and spinning departments of Geneva Mill by 58 per cent; also new boiler house.

Wakefield. Wakefield Mills Co.; new 60 x 90 ft. bleach house.

Woonsocket. Lafayette Worsted Co.; new three-story, 68 x 201 ft. building; also new power substation.

Tennessee, Sweetwater. American Textile Woolen Mills; one-story addition; add 720 spindles and two sets of cards.

Vermont, Northfield. Nantanna Worsted Co., Inc.; two-story, 70 x 50 ft. addition for spinning and drawing departments.

Virginia, Cedar Bluff. Clinch Valley Blanket Mills, destroyed by fire in May, 1922, rebuilt, resumed operations in October; one set of cards, 300 spindles, seven broad looms, finishing machinery; generate own power.

Winchester. Virginia Woolen Co.; constructing two-story, 63 x 116 ft. addition.

Wisconsin, Onalaska. Western Spinning Mills; add 1,460 mule spindles; also install dyeing equipment; incorporated for $200,000. D. C. Stickler, president and treasurer.

Prairie Du Chien. Prairie Du Chien Woolen Mill Co.; new two-story 14 x 186 ft. addition; 28 looms to be added.

KNIT

Alabama, Albany. Cooper, Wells & Co. branch mill; 100 hosiery machines; propose new building with 180 knitting machines; capital increased to $1,000,000.

Huntsville. Huntsville Knitting Co.; new office, 24 x 26 ft.; also warehouse, 60 x 106 ft.

Connecticut, New Britain. American Hosiery Co.; new boiler plant, 40 x 54 ft., brick and steel construction.

Georgia, Union Point. Union Mfg. Co.; completed two-story, 150 x 80 ft. addition; increase equipment to 425 knitters, 90 ribbers, 60 loopers.

Illinois, Kankakee. Paramount Knitting Co.; erect new three-story building, 50 x 80 ft.; change name to Bear Brand Hosiery Co., incorporating for $3,800,000.

Indiana, Indianapolis. The Indianapolis Glove Co.; erect five-story mill addition, 75 x 220 ft., brick and steel.

Indianapolis. Real Silk Hosiery Mills; erect two-story mill addition, 100 x 190 ft.; also boiler house.

Maryland, Hagerstown. Interwoven Mills, Inc.; erected new mill, 80 x 165 ft., one story; also considered the erection of plant at Williamsport, Md.

Massachusetts, Malden. Yale Knitting Co.; four-story addition, costing $40,000.

Newtown Lower Falls. Suffolk Knitting Mills, Boston; establish new yarn plant; erect two-story brick building and one frame building; started production Feb. 1, 1922; manufacture wool yarn of all sizes; five sets woolen cards, two pickers, 75 knitting machines.

Michigan, Grand Rapids. Grand Rapids Knitting Mills; adds two stories to mill; equipment increased to 30 knitting machines and 75 sewing machines.

Minnesota, Minneapolis. Strutwear Knitting Co.; five-story, 82 x 104 ft. plant; also boiler room, 50 x 104 ft.

New Hampshire, Laconia. Pitman Mfg. Co.; addition to knitting mill and new dye house, cost $60,000.

New York, Amsterdam. The Griffin Mfg. Co. obtains new and larger quarters and increases capacity on sweaters and bathing suits.

Amsterdam. A. V. Morris & Sons, erect three-story office building.

Ballston Spa. Ballston Spa Knitting Co. purchase plant of Crippen & Reid; will operate same on manufacture of sport coats; also lease part of the Senate Knitting Co.; new building, 84 x 90 feet, for drying and finishing departments, under construction; notice of dissolution filed by Ballston Knitting Co. and Ballston Spa Knitting Co., the latter to continue under name of Floyd J. Shutts and the former under its present name; a new addition 56 x 26 ft., three stories high, will be erected by the Ballston Knitting Co.

Brooklyn. Congress Knitting Mills remove to larger quarters at 9 to 13 Wyckoff av.

Brooklyn. Goldleaf Knitting Mills have removed to larger quarters to 302 Penn st.; the company has purchased the plant of the Ureka Knitting Mills of Ridgewood.

Brooklyn. Lombardi Knitcraft, Inc., removed plant to 96 Seventh av. and 800 Union st.; operating 25 circular and 15 flat knitting machines and 20 sewing machines.

Brooklyn. Morris Knitting Mills erect new building for their plant on DeKalb av.

Brooklyn. Warwick Knitting Mills, increase to 125 knitting machines and 40 sewing machines.

Elmhurst. The Propper Silk Hosiery Co. started erection of new mill building, three-story, 50 x 200 ft., at Laurel Hill Boulevard and Baxter pl., to cost about $95,000.

Fonda. O'Melia Bros. Silk Co., new name for concern formerly the Brunswick Silk Co., makers of knitted fabrics; addition 40 x 50 ft. erected, and four new Milanese machines added.

Gloversville. Foster & Gifford Silk Mill purchase equipment of Elco Silk Mills and transfer it to their plant; also install finishing machinery for knitted fabrics.

Gouverneur. Cortland-Gouverneur Silk Mills, Inc., erect addition, one-story, 114 x 94 and remove machinery from Cortland (N. Y.) branch for installation in it.

Norwich. Abbott & Kohn, with 50 looms on ribbons erect new 50 x 200 ft.; two-story building.

Whitehall. The Champlain Silk Mills discontinue Brooklyn plant and remove machinery to two local mills; also establish new branch at Glens Falls.

Yorkville. The plant, formerly the Mohawk Weaving Co., taken over by Raiway Silk Corp.; W. B. Foster, president; 1,500 spindles, 24 looms.

Pennsylvania, Bally. Bally Mfg. Co.; erect three-story mill, 50 x 56 ft.

Carlisle. Ernest and Herman Levy, Inc., erect concrete and steel addition to mill.

Chester. Adelaide Silk Mills; install 100 additional looms and other equipment.

Chester. Textile Mfg. Co., makers of art silk "Viscotop," start operations in new quarters at Delaware and Jeffery Sts.

Easton. Gunning Silk Co.; purchased plant of Continental Silk Co., Phillipsburg, N. J., to operate as Mill No. 2.

Philadelphia. E. L. Mansure Co.; erect five-story addition, 26 x 104 ft., in which was installed new looms and other equipment.

Rhode Island, Pawtucket. Darlington Textile Co., erecting one-story, 86 x 140 ft. addition.

Destroyed by fire; erect new brick building.

Mayfield. The Children's Glove Co. plant three stories, 30 x 80 ft.

Mayfield. Van Buren Glove Co.; erect new building to replace one destroyed by fire.

New Hartford. The Olympia Knit Goods Co. install new machinery.

New York. Atlantic Knitting Mills file notice of increase in capital to $100,000; complete addition, doubling capacity of plant at Lynbrook, L. I.

Schenectady. The Gloversville Knitting Co. erecting new two-story, 52 x 112-ft. building.

Utica. The McLoughlin Textile Co. erects new building at 614 Broad st., costing $45,000.

Watertown. The Shaughnessy Knitting Co. install machinery for manufacturing fibre silk underwear specialties.

North Carolina, Ashboro. Acme Hosiery Mills, Inc., finishes three-story, 60 x 100 ft. addition.

Burlington. May Hosiery Mills, Inc.; succeed Daisy Hosiery Mills; build new office, warehouse and knitting room building, 45 x 106 ft.; National Dye Works subsidiary of May Hosiery Mills, erect 45 x 100 ft. building, two stories and basement.

Hickory. Hickory Hosiery Mills; erect 42 x 130 ft. plant.

Lexington. Shoaf-Sink Hosiery Mill Co.; erecting new hosiery mill building, one story, 50 x 190 ft., to be ready by April 1.

Mount Airy. Renfro Hosiery Mills; add 35 knitters, 13 loopers and 18 ribbers.

Pennsylvania, Dallas. Lycoming Knitting Co., Ltd.; purchased the property of the Hildebrandt & Frantz Mills; added new equipment.

Hazleton. Century Knitting Co. erect 40 x 70 ft. mill addition; erect 30 x 120 ft. storage house; erect annex and bleachery, 60 x 140 ft.

Lebanon. William S. Taubel, Inc.; install 150 additional hosiery machines.

Linfield. Graceline Knitting Co.; completed erection of new building, two stories, 40 x 80 ft.; installed 10 knitting machines.

Nazareth. Kraemer Hosiery Co.; erects 90 x 200 ft. addition, equipped with full-fashioned machines.

Norristown. Rambo & Regar, Inc.; erect new one-story, 60 x 100 ft. addition.

Philadelphia. Allen Hosiery Co.; new building; took over business of the Mauch Chunk (Pa.) Hosiery Mills.

Philadelphia. Cambria Silk Hosiery Co.; new mill building, 120 x 237 ft., with dye house.

Philadelphia. Concordia Silk Hosiery Co.; erect addition costing about $100,000.

Philadelphia. Grauer Bros.; moved to new and larger location at Fifth st. and Columbia av.; additional equipment installed.

Philadelphia. Hughes & Bradley removed to larger quarters at Tenth st. and Washington av. and install additional machinery.

Philadelphia. W. T. Zachary, Inc.; install nine full-fashioned hosiery machines; sold seamless hosiery department to Cracioh Corp.

Shenandoah. Miller Knitting Mills, erect five-story mill addition, 40 x 100 ft.

Wyomissing. The Berkshire Knitting Mills; erect four-story and basement addition, 90 x 262 ft.; purchased property in vicinity of mill valued at $350,000.

Rhode Island, Woonsocket. Rathbun Knitting Co. consolidates machinery from branch plant at Rockville, Conn., at main mill; also plans addition.

South Carolina, Gaffney. Gaffney Knitting Co. occupy new 20 x 120 ft. building; C. M. Smith, president and treasurer.

Tennessee, Chattanooga. Mountain City Knitting Mills, addition to dyehouse; install 14 additional knitting machines.

Chattanooga. United Hosiery Mills add knitting machines at main plant; increased capital to $4,000,000; plan installation of 10,000 new spindles.

Knoxville. Knoxville Spinning Co. erecting three-story, 70 x 165 addition, to be equipped for underwear manufacture; Gen. L. D. Tyson, president; S. W. Duggan, secretary and treasurer.

Texas, Dallas. Texas Hosiery Mills, capital increased to $125,000; install machinery to double production; dyeing and finishing plant installed.

Utah, Ogden. Ogden-Utah Knitting Co., new two-story, 56 x 165 ft. mill.

Virginia, Pulaski. Paul Knitting Mills, Inc.; to enlarge equipment by 100 knitting machines; contract let for three additional buildings; capital increased to $400,000.

Wisconsin, Fort Atkinson. Better Sox Knitting Co.; erecting new 50 x 66 ft. plant.

Milwaukee. Holeproof Hosiery Co.; six-story, 65 x 66 ft. addition; capital increased to $3,750,000.

Milwaukee. National Knitting Co.; new four-story, 40 x 40 ft. addition.

Neenah. Jersild Knitting Co.; new two-story, 60 x 120 ft. building.

SILK

Connecticut. Danbury. Tweedy Silk Mills, Inc.; construction of new office building, power plant and a dye house.

New London. Edward Bloom Co.; addition, two stories, 56 x 168 ft., for weaving and silk throwing departments; started negotiations for the building of third and fourth units of their plant.

Illinois, Chicago. E. L. Mansure Co. to erect eight-story addition, to cost $1,750,000.

Massachusetts, Boston. New England Spun Silk Corp. erect two-story weave shed at Brighton plant; two-story, 25 x 55 ft. addition to Newton Mills branch at Newton Upper Falls.

New Jersey, Paterson. Heck Silk Co., Inc., new location at 106 Madison Av.; 70 looms.

Trenton. F. A. Straus & Co., mill addition also purchase two local mills of Taubel-Scott-Kitzmiller Co., to be devoted to silk throwing.

West New York. Carmen Silk Co. removes to 588 12th St.; increases looms to 80; J. J. Sissmuth, president.

New York, Buffalo. The du Pont Fibrenik Co. erects addition costing about $2,000,000 to double capacity.

Brooklyn. Brooklyn Silk Yarn Co. taken over and expands business of Robnot Yarn Corp.; Max Feigenbaum, president.

(Drawing by R. J. Shutting, Chattanooga, Tenn.)

Plant of Hillside Cotton Mills, LaGrange, Ga., in Which Many Improvements Were Made During 1922.

Financial Review

Textile Security Values on Conservative Basis

In Few Instances Have They Fully Discounted a Further Business Improvement—Southern Cotton Mills and Carpet Mills Are an Exception—Any Improvement in Earnings Should Be Quickly Reflected in Cash Dividends and Stock Values

THROUGHOUT the year 1922 business was so much better with the majority of textile mills than it was in 1921 that comparatively little complaint has been heard from manufacturers and merchants regarding the numerous handicaps encountered by many of them during the year just passed. So insignificant were the majority of these handicaps as compared with those met and conquered during the depression immediately following the collapse of the 1919-20 boom that their effect was underestimated, and possibly overlooked at the time. Viewing the year in retrospect, however, it can be seen that the effect of the protracted strike upon New England cotton mills, the effect of an abnormally high raw material tariff and of tariff uncertainties upon the wool industry, and the effect of the ultra-conservative buying policy of most distributors had really been restricting factors of major importance. Excepting for the carpet mills and southern cotton mills, the business situation was decidedly spotty for most textile manufacturers up to September or October, and certain classes of mills have begun to feel a substantial improvement in business only recently. Even now business with northern combed yarn spinners and mercerizers is only fair, and the tire cord and fabric trade is still in the doldrums.

Sound Financial Position

An outstanding feature of 1922, and one that was participated in by the great majority of textile mills, was the completion of the financial rehabilitation of those mills that had suffered most seriously from the business slump in 1920. A year ago the financial futures of a considerable number of textile mills was in the hands of bankers, but today there are comparatively few that have not worked out of the bankers' hands into an independent financial position. The textile "lame ducks" have either been eliminated or have been placed in a position where their ultimate recovery is only a question of a few seasons of profitable business.

With the exception of the tire cord and fabric mills and spinners furnishing them yarn on contract the liquidation of high-priced inventories and contracts had been completed when the year 1922 opened, but what might be termed the liquefaction of notes and accounts receivable was far from being completed in many cases. Not only has this factor forced much borrowing and re-financing in order to provide adequate working capital, but certain mills that indulged in abnormal plant expansion at peak prices have been obliged to take similar action. In fact, the latter class of mills is not only handicapped by lack of working capital, but by an abnormal overhead, and it may take several years to reduce this overhead to a normal basis.

Effect of Strikes

Many a New England mill could have avoided unusual borrowings and re-financing if it had not been for the protracted strikes during the first half of 1922, but New England's loss was the South's gain, and the large amount of business that was shifted to the South by the strike made it possible for many mills in the latter section to avoid excessive borrowings and re-financing. Since an ample supply of liquid capital is requisite for the profitable operation of any business, and since this has been one of the outstanding features of textile mill financing, it may be fair to consider the year 1922 as witnessing the completion of boom liquidation. This view is heightened by the fact that a number of mills which had worked into an easy position during 1921 purposely delayed re-financing for the more favorable financial opportunities that developed last year. Even now there are a few mills that are delaying necessary re-financing until they are able to show a considerable period of satisfactory earnings.

Stock and Cash Extras

While stock dividends represent little more to the shareholder than the splitting of their certificates into two or more parts, they are quite as accurate barometers of a strong financial condition as are extra cash dividends. The tax incentive and other factors that stimulated the declaration of stock dividends by a large number of textile mills during 1922 were quite as active a stimulant to this action in 1921, but it is significant that very few stock dividends were then declared. The reason will be self-evident to the majority of mill treasurers and directors, and is found in the fact that neither the business outlook nor the financial position of these mills was sufficiently certain and secure at that time to warrant the freezing of tangible and intangible assets through an increase in stock capital. Viewed from this standpoint, it must be admitted that the year 1922 was one of marked progress in the industry toward, or beyond, a normal and secure financial position.

The considerable number of extra cash dividends that were declared last year by textile mills were due directly to unusual earnings of 1921 and 1922 in only a few exceptional instances. These came from profits that were actually earned in 1919-20, and that were saved from the crash that followed. They were husbanded until it was certain that the crisis had been safely passed, and that future earnings were to be sufficient to take care of normal dividends. These cash extras, combined with maintenance of regular dividends by a majority of mills and resumption of former rates by others, are certain indications of the strong financial position of the industry as a whole, and, combined with numerous stock dividends, and with a fair average advance in the stock values of most textile securities, afford ample evidence of very complete recovery from the depression of 1920, and forecast increased profits, cash dividends, and stock values for 1923.

Dividends and Stock Values

Average dividends paid by New Bedford and Fall River mills may be accepted as showing what might have been the result for other New England mills had it not been for the protracted strike. For the latter average dividends for the year were little better than the 4 to 4½ per cent

COMPARATIVE VALUES OF TYPICAL NEW ENGLAND TEXTILE SHARES, 1914 TO 1923, SHOWING HIGH AND LOW FOR EACH YEAR, AND VALUES JULY 1, 1914, AND DECEMBER 31, 1922.

	1922			1921		1920		1919		1918		1917		1916		1915		1914		
	Dec. 31.	High.	Low.	High.	Low.	High.	Low.	High.	Low.	High.	Low.	High.	Low.	High.	Low.	High.	Low.	High.	Low.	July.
American Woolen, pfd.	109¼	111⅝	102	104	91	105¼	92	109½	94⅛	99½	89	100¼	87¼	99¾	92½	98	77½	82¼	73⅝	74½
Amoskeag, com.	113	117	106	104	72	*167	75½	150	80	90	60½	75	60	77½	66	67	59½	65	58½	62
Androscoggin	141	141	119	125	119	*225	193¼	193¼	180	190	178	195¼	190	301	180	160	135¼	137	135¼	137
Arlington	114½	114½	90½	109	90½	172¾	89	141¼	109	126½	106⅞	120	106⅞	120½	100	100	75	80	74¼	80
Bates	240¾	273	190⅛	211⅜	183	315½	195	273	255	275	251	360	258⅛	293¼	240	241¼	213¼	230⅜	218¼	213¼
Bigelow-Hartford, pfd.	119¼	119¼	93¾	122⅛	93⅜	111	93	100	83¼	89½	80½	85	85	112	106½	107¾	103	...	...	...
Great Falls	75¾	120½	75¾	147½	119½	241	131	219	177	195½	177	215	194	201⅜	187⅜	192	170½	180	168	170⅝
Hamilton Mfg.	85	92½	63	120	70	*187⅜	140¾	155	109	115	90	99	98	87½	73	77½	60¼	83	75	75
Lancaster, com.	142	150	120	130	100	165	130⅜	165	90	95⅝	77	82¼	75¼	90½	79	92	60	92	75	75
Lyman	186½	186½	162½	180	162½	190½	175	170½	132	140	131⅛	133	133	126½	122½	125⅝	112	120¾	112	120
Mass. Cotton	158½	158½	146	148¼	132⅞	167¾	132½	145	118	142	126	140¼	122	140	123	133¼	114	116	115½	116
Merrimack, com.	104½	104½	90¾	102	74	125½	100	117	66⅝	78	60¾	63⅛	58	54½	33	*35	22	*30⅛	24½	24⅝
Nashua, com.	75¼	85	73	109½	85	*260¼	105⅛	310	230	*855½	798	804	798	821	750	711¼	*650	672½	630	672½
Naumkeag	260¼	260¼	210¼	208	189¼	241½	195	222¼	163	195½	154	200⅛	190	210½	185	222¼	178¼	*198¼	172	172
Pacific	190	190	159	170	147	175	160	*190	150	155	129	181	127	181¾	126	125	102	112½	106	110
Peppercll	164¾	180	164⅜	202	178	220	200	210	188	206¼	190	204	188	194½	120¾	*346⅛	305	*305⅜	290	305
Tremont & Suffolk	155½	165½	135	190	125	281	190	280¼	157½	158	137½	142½	139	140½	112	112	97	102	100	100⅜
York	220	220	195	225	195	226	133½	190	110	133½	110	126	113	115½	95¼	95⅛	85	85¼	85	85

* Old stock.

SHERMAN

MOTIVES

If a man takes the life of another, the law recognizes that motive controls action, and the State will ascertain the motive for the act.

But outside of matters governed by law, little thought is given to motive, although every act of every man, whether at work or at play, is controlled by motive.

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interest rate paid by many savings banks, and it is reasonably certain that the Fall River and New Bedford cash dividends would not have averaged as large had it not been for the delayed disbursement of profits accumulated during the boom. The cash dividends paid by a representative group of Fall River mills, averaged 9.6 per cent. and compared as follows with average dividends of the previous six years: 1921, 8.01 per cent.; 1920, 32.77 per cent.; 1919, 14.46 per cent.; 1918, 18.02 per cent.; 1917, 13.08 per cent.; 1916, 8.01 per cent. An equally representative group of New Bedford mills paid in 1922 an average of 9.07 per cent., which compares with an average for the last 13 years of 12.9 per cent. These figures include extras as well as regular dividends, but do not include stock dividends. Regular and extra cash dividends for an equally representative group of southern cotton mills averaged in 1922 a little over 14 per cent. and included only a few cash extras. Earnings of woolen and worsted mills for the year averaged better than those of cotton mills, but the majority of knit goods and silk mills did not do so well.

Stock values might be expected to give a better idea of the extent of the improvement in the financial position and earning capacity of textile mills, as appraised by unbiased investors, than does a comparison of dividend payments. Bearing in mind, however, that the average advance in stock values of many New England cotton and wool mills from the low of 1921 to the high at the close of that year was only 10 points, and that the average advance since then has been barely 12 points, it can be seen that the total rise has been extremely small as compared with that of other classes of high-grade listed industrials; what is still more important is the fact that the advance in textile shares is found to be entirely disproportioned to the relative improvement in business. The textile industry was the first of the country's big industries to start on the road to new prosperity and it has progressed farther along the road to complete recovery. Its securities should have fully reflected this recovery and, in addition, should have discounted a portion of the increased earnings that now appear to be assured. Instead we find that a representative list of 13 Fall River mills have scored an average increase in stock value during 1922 of only 12⅞ points, an equally representative group of 16 New Bedford mills only 14½ points, and a group of 18 mills in northern New England only 11 points. As might be expected, southern cotton mills make a better showing, a representative group of 22 mills having scored an average advance in stock values during 1922 of 37¾ points.

Present Stock Values Conservative

Although it is safe to forecast that the 1923 trend of textile stock values must be upward and that the extent of the advance will depend only upon the volume and profitableness of business during the year, it will be well to bear in mind the fact that textile share values never suffered such a serious decline following the depression of 1920 as did those of most other classes of industrial securities.

NEW BEDFORD MILL DIVIDENDS, 1922

(From Sanford & Kelley)

Corporations	Capital	Rate	Amount
Acushnet Mills.	$1,500,000	8b	$120,000
Beacon Mfg. Co., com.....	*1,200,000	6	24,000
Beacon Mfg. Co., pfd.....	†1,000,000	6	60,000
Booth Mfg. Co., com.	852,800	8	68,224
Booth Mfg. Co., pfd.	$527,400	6	31,644
Bristol Mfg. Corp.	1,000,000	10	100,000
Butler Mill.....	2,000,000	8	160,000
City Mfg. Corp..	750,000	8	60,000
Dartmouth Mfg. Corp., com...	2,000,000	16c	320,000
Dartmouth Mfg. Corp., pfd....	600,000	5	30,000
Fairhaven Mills, com.	1,500,000	6	90,000
Fairhaven Mills, pfd.	2,000,000	6	120,000
Gosnold Mills, com.	1,650,000	8	132,000
Gosnold Mills, pfd.	1,650,000	6	99,000
Grinnell Mfg. Corp.	1,500,000	8	120,000
Hathaway Mfg. Co.	1,600,000	8e	128,000
Holmes Mfg. Co., com.....	600,000	20	120,000
Holmes Mfg. Co., pfd.....	600,000	8	48,000
Kilburn Mill...	1,500,000	8a	120,000
Manomet Mills.	8,000,000	7	560,000
Nashawenna Mills	4,500,000	8	360,000
Neild Mfg. Co..	800,000	40a	320,000
Nemasket Mills, com.	300,000	8	24,000
Nemasket Mills, pfd.	300,000	7	21,000
N. B. Cotton Mills, com....	‡350,000	..	.....
N. B. Cotton Mills, pfd....	750,000	6	45,000
Nonquitt Spinning Co.....	4,800,000	4½	216 000
Passaic Mills, com.	200,000	..	.....
Passaic Mills, pfd.	1,373,000	..	.....
Pierce Mfg. Co..	600,000	50	300,000
Pierce Bros., Ltd.	700,000	6	42,000
Potomska Mills.	1,200,000	8a	96,000
Quissett Mills, com.	1,250,000	58d	725,000
Quissett Mills, pfd.	305,000	6	18,300
Sharp Mfg. Co., com.	2,656,000	8	212,480
Sharp Mfg. Co., pfd.	1,161,000	8	92,880
Soule Mill.....	1,260,000	38	478,800
Taber Mill.....	1,200,000	8g	96,000
Wamsutta Mills	4,000,000	8a	320,000
Whitman Mills.	2,000,000	12a	240,000
	$61,735,200		$5,998,328

* Increased from $400,000 by 200% stock dividend.
† Authorized $1,200,000.
‡ This is before retirement of 10% of preferred stock and fractions as of Dec. 1, as correct figures were not available when this table was compiled.
a Also stock dividend of 50% in Dec.
b Also stock dividend of 33⅓ in Dec.
c Also stock dividend of 100% in Dec.
d Also stock dividend of 60% in Dec.
e Also stock dividend of 25% in Dec.
f Stock dividend of 200% in Dec.
g Also stock dividend of 33⅓ in Dec.

None of the above stock dividends are included in this table, except Beacon Mfg. common.

The dividends paid by New Bedford cotton manufacturing corporations in 1922 on $61,735,200 capital, amounted to	$5,998,328	9 72/100%
There was paid in 1921 on $59,374,000 capital.....	5,458,956	9 19/100%
Increase	$539,372	

That explains in part why the net average advance for the last two years has ranged only between 20 and 25 points, and it may also tend to prevent any such radical further advance as would seem to be warranted by the improvement in business that has already taken place and that may be expected to develop during the current year. There is another factor that tends to stabilize unlisted textile securities and prevent such radical advances and declines as are common in most listed securities, and that is the comparatively narrow market for such stocks, and the fact that most holders make their purchases for investment and hold them irrespective of temporary conditions. Many of the high-grade textile stocks are considered by regular investors to be practically as safe as a first lien bond, with reasonable certainty of much larger average returns than from certain highly speculative investments. However, the number of listed textile shares is constantly increasing, and the market for them is certainly broadening, with the result that more general investment interest is being attracted to textiles. Coincident with this development, and in large part the result of it, there is a growing disposition on the part of textile executives to make public more detailed and comparable balance sheets and profit and loss statements. It can be only a question of time before this policy becomes common, and there is no doubt that it will prove a most effective factor in stimulating more general investment interest in textile securities.

Stock Dividends Dominant Feature

New Bedford Mills Declare Extra Disbursements Ranging from 25 to 200 Per Cent.

NEW BEDFORD, MASS.

THE last year has been one of past year in the cotton manufacturing industry of New Bedford was the record number of stock dividends. No less than 12 corporations declared extra disbursements of this nature, varying in amounts from 25 per cent to 200 per cent, and totalling $10,300,000. These additional amounts to the capital stock of $56,531,600 bring the outstanding capitalization of the 26 corporations to $66,831,600, an increase of approximately 18 per cent.

Even with the added capital, the average cost per spindle amounts to very little more than $20, an extremely conservative estimate in view of the fact that it would cost approximately $50 per spindle to replace the machinery at present day costs. These figures demonstrate the comparatively low values used in relation to fixed assets of the plants. With the exception of Nonquitt, which passed its dividend in the first quarter of the year, each of the corporations maintained regular disbursements, although there were two instances in addition to Nonquitt where the distribution was reduced from the regular dividend, these being Manomet and Fairhaven.

Averaged $28.69 Per Share

In the last week of the year, Soule paid an extra cash dividend of $30. The dividend on the common stock of the New Bedford Cotton Mills is not made public, but assuming that it was not less than six per cent, the cash distribution for the year by the 26 corporations amounted to $5,930,492, or an average of $10.49 plus, compared with $9.19 the previous year. With the $10,300,000 distributed in the nature of stock dividends, the total disbursed in stock and cash dividends amounted to $16,230,497, which on the outstanding capital of $56,531,600 averaged $28.69 per share, surpassing that of the boom year of 1920, when the amount in cash and stock dividends was $13,337,367, or an average of $26.17.

After passing its dividend in the first quarter of the year, Nonquitt reduced its rate from $2 to $1.50 for the last three quarters. Manomet paid the regular $2 in the first and second quarters, but dropped to $1.50 for the last two quarters. Fairhaven common disbursed $2 for the first two quarters, then reduced the rate to $1 for the third and fourth quarters. All the other corporations maintained at least the same rate as the previous year, while in several instances there were extra cash dividends in addition to the stock disbursements.

Quissett Leads in Generosity

Common stockholders of Quissett received the most liberal returns on their shares, with $58 in cash, an extra of $50 in September supplementing the regular quarterly amount of $2. Pierce was not far behind Quissett, the extra of $18 in the last quarter, on top of the regular $8, bringing the total amount for the year to $50. Neild distributed an extra of $20 in addition to the $5 quarterly disbursements, making $40 for the year.

Soule was the next largest with $38, being followed by Holmes with $20 on the common stock, Dartmouth with $16 on the common, Whitman with $12, and Bristol with $10. These eight were the only corporations to pay $10 or more in cash, although Potomska declared a cash dividend of $25 in December which was not payable until January, making $33 for the year for that corporation. In addition to their large cash dividends, Quissett with 60 per cent, Neild with 50 per cent, Dartmouth with 100 per cent, Potomska with 50 per cent, and Whitman with 50 per cent, all paid stock dividends.

Running Near Normal Capacity

At the present time the cotton mills are running nearer to normal capacity than has been the case since 1920, a review of working conditions showing more than 90 per cent of the operatives employed on full time. In a few instances night work has been resumed at some of the plants, although in most cases this is where certain departments are behind schedule with other branches. During the first six months of the year it was

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stated that some of the yarn mills were not operating as much as 50 per cent of the normal output, and operatives and managements alike shared in the curtailment which was general throughout the industry.

The cloth mills did not suffer to the same extent as the yarn mills, as the fine class of goods turned out by the New Bedford mills did not meet the same competition from other textile centers as was the case with the spinning plants. At the time of writing, only a few of the corporations have held their annual meetings, and much interest will be shown in the financial statements to be issued by many of the companies scheduled for the month of February.

Optimistic Over Coming Year

The general feeling is one of optimism that for at least six months both the yarn and the cloth mills will operate at practically full capacity, in marked contrast to the conditions that obtained in the first half of 1922. During the year there was little change in the number of looms or spindles operated in the mills of the city. The number of spindles reported active at the present time is 3,593,598, an increase of 1,368, while the looms decreased 132 to 54,467. The number of employes at the end of the year was 41,360, a slight increase of 130 over 1921.

Few additions or alterations were made during 1922, the estimated cost being $100,000. The Wamsutta proceeded with its work of renovating the plant, which is fast nearing completion, and the Acushnet and Hathaway Mills are making additions to their picker rooms at an estimated cost of $40,000 in each case.

Increase in Savings Banks Deposits

The same wage rate prevailed in New Bedford as in 1921, and in comparison with many other textile centers throughout the country, the city was practically free from labor troubles or strikes. Despite the short time worked in the early part of the year, the operatives forwarded weekly donations to the striking workers in other cities, and as showing the improvement in the prosperity of the employes, an increase in deposits in the savings banks is reported of $2,834,116 compared with a decrease of $562,206 during the year of 1921.

Dealing in mill shares was above the average, although not reaching the activity of two years ago. The fluctuations showed a wide margin between the high and low selling prices, ranging as they did from $3 to $100 per share. The stocks reported as the most active were Bristol, Nonquitt, Nashawena, Manomet, Wamsutta, Booth common, Beacon preferred, Gosnold common, Sharp common and Fairhaven preferred. It was not until the last half of the year that prices took an upward trend, when they showed a marked increase as business improved and the rumors of prospective stock and cash dividends were circulated.

HIGH AND LOW ON NEW BEDFORD STOCKS
1922 AND 1921
(From Sanford & Kelley)

	1922		1921	
	High	Low	High	Low
Acushnet Mills	180	155	160	150
Beacon Mfg. Co., pfd.	101	90	95	88
Booth, com.	175	144	150	120
Booth, pfd.	115	107½	126	107½
Bristol Mill	195	140	180	145
Butler Mill	153	140	157½	120
City Mfg. Co.	160	147½	200	170
Dartm'th, com.	300	250	260	200
Dartm'th, pfd.	88	79½	80	75
Fairhaven, com.	155	120	165	141
Fairhaven, pfd.	100	87	92	80
Gosnold, com.	137½	111*	122½	105
Gosnold, pfd.	100	83	90	80
Grinnell Mfg Corp.	150	127½	157½	145*
Hathaway Mfg. Co.	No Sales		No Sales	
Holmes, com.	300	250	300	260
Holmes, pfd.	119	116	115	100
Kilburn Mill	300	215	235	200
Manomet Mills	115	96	125	110
Nashawena Mills	150½	115	145	117
Neild Mfg. Co.	325	268	270	200
N. B. Cotton Mills Corp., com.	No Sales		No Sales	
N. B. Cotton Mills Corp., pfd.	98½*	95	95	87½
Nonquitt Spinning Co.	108*	85	112½	92½
Pierce Brs., Ltd.	No Sales		No Sales	
Pierce Mfg. Co.	440	435	450	430
Potomska Mills	220	165	210	175
Quissett Mills, com.	300	200	257½	235
Quissett Mills, pfd.	No Sales		101	96
Sharp Mfg., com.	124	100	129	95
Sharp Mfg., pfd.	108	103*	105½	98¾
Soule Mills	235	167½	170	150*
Taber Mills	165	129	155	105
Wamsutta Mills	160	113½	127	107½
Whitman Mills	225	180	205	190

* Ex. Div.

Increased Dividends in Fall River

But Necessary to Draw on Surpluses—Eight Mills Declare Stock Dividends

FALL RIVER, MASS.

TAKEN altogether Fall River textile securities paid an average of 9.324 per cent. in dividends during the past year as against 8.7 per cent. for the year 1921 but to do this the past year nearly all of the corporations have had to draw on their surplus funds. That some of the corporations could have made heavier drafts on their surplus accounts, however, is shown from the fact that eight of the corporations in addition to declaring cash dividends paid stock dividends of anywhere from 33⅓ per cent. to 50 per cent. each, and still others were equally able to take similar action had they deemed it wise.

As in other textile centers business here was in a slump throughout the first six months of the year and considerable criticism arose because of the stand taken by the manufacturers in refusing to cut wages when cuts were announced by the cotton mills in other sections of New England. Continuation of the same schedule of wages forced many of the mills to shut down either entirely or in part and few if any of those that ran in full broke more than even. Later when business did begin to pick up the price of raw cotton advanced out of all proportion to the advance of the finished product and earnings were consequently small. The mills are nevertheless in a healthy condition as a whole and from the present outlook should be able to hold their own with their southern competitors despite the advantages held by the latter in having longer working hours and possibly cheaper production.

Stock Dividends

As stated eight of the corporations declared stock dividends, thereby bringing the spindle capitalization of each much nearer the cost of replacement, and barring labor troubles it cannot be seen why these several mills should not continue paying fully as high dividend rate despite the extra stock. The Sagamore Mfg. Co. paid a 50 per cent. stock and 20 per cent. cash dividend. This mill has made splendid dividend showing for a number of years and following the announcement of the stock dividend the stock jumped to $410 per share. At no time during the year was it quoted below $315 and for years it has been one of the most eagerly sought local mill stocks.

Though a much smaller corporation, the Cornell paid 21 per cent. in cash and 59 per cent. in stock after paying 12 per cent. for the previous year and as high as 65 per cent. in one year during the war period. The stock has been in active demand but few shares have been obtainable. The market price of the stock advanced some $50 per share in the course of the year and is worth all of the advance.

Very little was doing in the Chace mill stock during the year but the mill paid a quarterly rate of 2 per cent. and largely out of earnings whereas it showed a loss of over $200,000 last year. The stock has gradually advanced during the year from 105 to 127. The Stafford and Pocasset, too, have made a better showing the past year as has the American Linen under its new treasurer. Good returns are predicted for all three of these mills during the coming year. The stock of the American Linen and Pocasset has very nearly reached par during the year and Stafford was quoted at 125 at the end of the year, an advance of 20 points during the 12 months.

The Border City, Charlton, Flint and Union Cotton Mfg. Co. each paid 50 per cent. stock dividends during the year in addition to cash dividends, 8 per cent. on the part of the Border City, Charlton and Flint and 41 on the part of the Union. The latter has been among the best dividend paying mills of the city and its stock is eagerly sought at all times. It still has a fine working surplus although it paid out $492,000 in dividends beside the 50 per cent. stock during the year.

The Flint showed quick assets of some $200,000 in excess of capital prior to the declaring of the stock dividend. This mill has also increased its quarterly rate for the present quarter from 2 to 4 per cent. The stock is much sought and has been as high as 240.

No particular surprise was occasioned by the Charlton declaring a stock dividend as such was proposed over a year ago and only given up at that time because of the dullness of the textile industry. This is one of the few fine goods mills of the city and has made a good showing during its short existence. It was organized in 1912 and started out with a debt of about $400,000. This has been wiped out and a surplus made of about that amount. Sales of the stock at $200 were quoted following the announcement of the stock dividend and ex-dividend at that.

Border City has forged rapidly to the front as a paying corporation within the last few years. It paid a quarterly rate of 2 per cent. during the year in addition to the 50 per cent. stock and is expected to pay a good dividend rate the coming year. Its capital per spindle is still small.

The Barnard paid a 150 per cent. stock dividend in 1921 and despite the large increase in capital paid a cash dividend of 8 per cent. during the year and is one of the few that earned its dividend. Very little of

HIGH AND LOW ON FALL RIVER STOCKS
1922 AND 1921
(From Sanford & Kelley)

	High.	Low.	High.	Low.
Am. Linen Co.	98	82	120	100
Ancona Co. pfd.	No sales		No sales	
Do., com.	No sales		No sales	
Arkwright Mills	72½	65	105	60
Barnard Mfg. Co.	140	115	112½	95
Border City Mfg. Co.	160	125	147½	125
Bourne Mills	155	133	135	127
Chace Mills	127	105	147½	100
Charlton Mills	180	150	185	140
C'n'nicut Mills	No sales		No sales	
Cornell Mills	230½	210	205	182½
Davis Mills	122	94	120	84
Davol Mills	132	100	120	102
Flint Mills	240	191	235	170
Granite Mills	117	100	160	115
King Philip Mills	205	125	150	120
Laurel Lake Mills, com.	58	40	150¼	40
Do., pfd.	105	100	New stock	
Lincoln Mfg. Co.	140	115	130	120
Luther Mfg. Co.	No sales		188*	175
Mechanics Mills	145	115	132	124
Merch. Mfg. Co.	185	150	215	125
Narrag'nst Mill	128	115	205	115
Osborn Mills	115	95	130	110
Parker Mills, com.	55	25	55	10
Do., pfd.	100	85†	..	..
Pilgrim Mills, com.	130	125	145	140
Do., pfd.	105	102	No sales	
Pocasset Mfg. Co.	95	71	106	70
Richard Borden Mfg. Co.	160	130	175	125
Sagamore Mfg. Co.	410	315	375	275
Sanford Spinning Co., com.	No sales		No sales	
Do., pfd.	98	85	99	90
Seaconnet Mills	45	35	77½	50
Shove Mills	95	75	85	65
Stafford Mills	125	105	147	115
Stevens Mfg. Co.	149	127	125	115
Tecumseh Mills	185	165	215	170
Troy Cotton & Woolen Co.	700	600	No sales	
Union Cotton Mfg. Co.	230	180	225	190
Wampanoag Mills	150	130	180	140
Weetamoe Mills	112½	90	140	85

* Ex-dividend.
† New stock.

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the stock is seen in the market although it has advanced over $20 per share during the past 12 months.

Progress of Other Mills

Considerable surprise has been expressed that nothing was done in the way of a stock dividend by the Merchants and Tecumseh mills during the epidemic of stock dividends. Both are considerably under-capitalized and well able to double their capital if so desired. The Merchants paid 8 per cent. and the Tecumseh 6 per cent. Tecumseh has held strong at 185 and Merchants at 165. Not much of either of the issues is often seen in the market.

FALL RIVER DIVIDENDS IN 1922

(From G. M. Haffards & Co., Fall River, Mass.)

Corporation.	Capital.	Rate.	Am'nt.
Amer. Linen Co..	$800,000	4	$32,000
Ancona Co., pfd..	100,000	6	6,000
Ancona Co., com.	200,000	..	....
Arkwright Mills.	1,000,000	0	....
Barn'rd Mfg. Co.	1,250,000	8	100,000
Bourne Mills.....	1,000,000	12	120,000
Border City Mfg. Co.	1,800,000	8[9]	96,000
Chace Mills	1,200,000	6	72,000
Charlton Mills...	1,200,000	8[1]	64,000
Cornell Mills.....	600,000	21[2]	84,000
Conanicut Mills..	300,000	..	....
Davis Mills.....	2,500,000	6	150,000
Davol Mills.....	500,000	6	30,000
Flint Mills.....	1,740,000	8[3]	92,800
Foster Spin'g Co.	300,000	..	....
Granite Mills....	1,250,000	6	75,000
K'g Philip Mills.	2,250,000	31[4]	697,500
Laurel Lake Mills, pfd.	300,000	8	24,000
Laurel Lake Mills, com.	600,000	..	....
Lincoln Mills.....	2,250,000	8[5]	130,000
Luther Mfg. Co..	525,000	8	42,000
Merch'ts Mfg. Co.	1,500,000	8	120,000
Mechanics Mills..	750,000	8	60,000
Narragansett Mills	600,000	7	42,000
Osborn Mills.....	750,000	6	45,000
Parker Mills, pfd.	1,250,000	0	....
Parker Mills, com.	1,500,000	0	....
Pilgrim Mills, pfd	350,000	6	21,000
Pilgrim Mills, com	700,000	4	28,000
Pocasset Mfg. Co.	1,200,000	6	72,000
Richard Borden Mfg. Co.....	1,000,000	8	80,000
Sagamore Mfg. Co.	3,000,000	20[6]	360,000
Seaconnet Mills..	1,200,000	2	24,000
Sanford Spin., com	500,000	..	....
Sanford Spin. pfd.	500,000	7	35,000
Shawmut Mfg. Co., pfd.	250,000	7	17,500
Shawmut Mfg. Co., com.	350,000	5½	19,250
Shove Mills.....	1,200,000	6	72,000
Stafford Mills....	1,000,000	6	60,000
Stevens Mfg. Co.	1,200,000	10	120,000
Tecumseh Mills..	750,000	6	45,000
Troy Cotton & Woolen Mfg...	300,000	8	24,000
Union Cotton Mfg. Co.	1,800,000	41[7]	492,000
Wampanoag Mills	1,000,000	8[8]	60,000
Weetamoe Mills..	500,000	6	30,000
	$44,815,000		$3,642,050

An average of 9.324%+, figured on old capital and excluding Ancona common, Conanicut, Foster Spinning and Sanford Spinning common.

[1] In addition to which 50% stock dividend was paid.
[2] In addition to which 50% stock dividend was paid.
[3] In addition to which 50% stock dividend was paid.
[4] Includes 25% cash dividend.
[5] In addition to which 38.46%+ stock dividend was paid.
[6] In addition to which 66⅔% stock dividend was paid.
[7] In addition to which 50% stock dividend was paid.
[8] In addition to which 33⅓% stock dividend was paid.
[9] In addition to which 50% stock dividend was paid.

King Philip paid a regular quarterly rate for the year of 1½ per cent. and an extra cash dividend of 25 per cent. This has been one of the large dividend paying corporations in the past and its stock has advanced during the last 12 months fully $50 per share. It was one of the stocks for which there is a continual inquiry. It had a surplus very nearly the equal of its capital stock according to its last annual statement.

Besides paying a regular cash dividend of 8 per cent. the last year the Wampanoag paid a 33⅓ per cent. stock dividend. This mill has a good working surplus and should make a fine showing the coming year. Its stock depreciated in 1921 but it is coming back strong and has regained 30 points.

The Parker Mills and Laurel Lake Mills are slowly gaining strength since reorganization and should be on their way to prosperity in a short period. The Davis, Bourne, Luther, Granite, Richard Borden, Shove and Stevens have continued their dividend rates throughout the year, earning them in some instances but only the Shove stock has figured in the trading of the year. This has advanced from 75 to 95.

Mechanics, Davol, Weetamoe, Shawmut, Pilgrim and Troy have made little if any change in their dividend rates for the year but in each instance are in better condition than one year ago.

Arkwright and Seaconnet have not made as good a showing and very little trading has been noted in the shares of either corporation, but improved conditions in the business generally is looked to benefit both these corporations materially.

Southern Mill Shares Advance

Consistent Demand for Investment Purposes—Outlook for Active Advancing Market

By *H. J. Blackford**

THE last year has been one of consistent improvement in the southern mill industry after the previous year of depression, which change has been nowhere better illustrated than in the advance of mill shares.

The beginning of 1922 found the balance sheets of southern mills with their inventories of cotton and goods marked down to a low figure. In the spring the manufacturers took full advantage of the depressed cotton market to purchase a large supply on a basis of 16c. and 17c. and on the other hand sold very little goods. Of course low money rates aided them considerably to take this position. In the early fall, again, with the cotton market at 21c. they purchased a supply sufficient for the coming season, anticipating even the Liverpool market. These factors, assisted by the reviving general prosperity, have aided the mills, so that their earnings as shown by recent statements for the last year have been excellent.

The market for southern mill shares has followed rather than anticipated the excellent earnings of the mills during 1922. The early months found the market very dull, but beginning with May an active demand sprung up, with few offerings. This demand has been maintained consistently, almost without interruption, since that time, with steadily advancing prices, so that an average of a number of active stocks will show an advance of over $40 a share since May.

Investment, Not Speculation

Inquiries for mill stocks have been coming from investors to a large extent, instead of from those purchasing strictly for speculation, as in 1920. These investors, from a great many sections of the country, who are familiar with the cotton mill industry, have come to believe that excellent labor conditions, the nearness of the mills to raw material and fuel supplies, increasing development of hydro-electric power and increasing familiarity of the managements with the making of finer textiles, make southern mill shares an attractive investment to hold over a period of years.

In looking forward to 1923 we believe that the increased purchasing power of the public, due to general prosperity, will create an excellent demand for textile products, which will be passed from the retailer, whose stock is comparatively low, along to the manufacturer. Most of the mills have a large supply of cotton purchased at very advantageous prices, sufficient for the larger portion of the coming year, and are now running night and day to fill orders already booked.

Active Market Forecast

As good earnings will follow these conditions, we think that the market for mill shares will continue active, with advancing prices, though the advance for the coming year may not be as rapid as that in 1922. With stocks still selling at $50 to $150 per share less than their book value, based on plants carried at $30 per spindle, which properties cannot be replaced at less than $45 to $55 per spindle, we think that the investor should have a good opportunity to purchase with discretion common stocks, as well as preferred stocks, of mills under satisfactory management. Those purchasing for re-sale should be able to take a substantial profit by the coming summer.

* Treasurer A. M. Law & Co., Spartanburg, S. C.

Year Opens Favorably

(Continued from page 161)

ward movement in price during the past year. There is every reason to expect that this upward movement will continue. It may be assumed that if consumption is not checked by high price of manufactured goods, we may see raw cotton reach thirty-five cents before the end of 1923.

This matter of increase in the price of the staple will bring about ultimately an increase in production. We have had an example in the cost of sugar of what increase in price can do in the matter of increase in production. It is not possible that the increase in cotton production, due to more extensive growing, should become effective as naturally as in the case of sugar. Movements toward increased production are already visible. Developments along this line are to be seen in the activity of the Pearce Mission from Great Britain which is now advising the Brazilian government on the matter of cotton raising. Hugo Stinnes is reported to be negotiating with Argentina with a purpose of developing plans for raising cotton in that country.

In the case of wool textiles, the situation is very similar to that existing in the cotton market, except of course, that supplies of foreign wool available are comparatively larger than those of foreign cotton.

While consumption in our mills shows an increase of 18 per cent. from a year ago, finished stocks are low. There has been a steady improvement in activity until the industry today is probably operating on a basis of 90 per cent. of active spindles.

Wool is generally reported as high in price, and scarce as to quantity and there is a shortage of domestic wools, especially those of fine grades. Some high-grade wool may of course exist, although from the manufacturers' point of view it is unavailable as it may be held for higher prices. Wool sales throughout the past year have been in fair quantities, but have rarely reached a point where they could be called large. Frequency of buying rather than size of purchase has been characteristic of the activity of manufacturers in the market. In some measure, we had a continuation of the hand-to-mouth policy of two years ago. Emphasis is given to this buying method by the fact that the mills are demanding immediate delivery on last-minute purchases.

The problem confronting manufacturers, aside from these influences beyond their control, is the question of price. In both departments of the textile industry the attitude of the consumer can only be guessed at. If he will accept the increase in cost already being taken up by the distributors, the textile industry can look forward to a very prosperous year. It is quite readily understood that inability to gauge that factor has caused cloth buyers to resist strenuously in price increases. In the cotton textile the consumer, apparently, has decided to disregard price increase so far as it has developed. In the woolen industry there is growing confidence that prices will not advance rapidly. The recently reported increase in prices of woolens was in no way great enough to suggest that it would have any serious effect upon distribution to the ultimate consumer—the buying public.

HUNDREDS of hurrying passersby pause before these little clocks in jewelers' windows —set their watches—and hasten on. They want the exact time—U. S. Observatory Time. They see many other clocks, but this is the one they trust—they have found it a symbol of Reliability.

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Official American Textile Directory

Published annually, in two editions—Office, Large Size, $4.00. Traveler's Flexible, Smaller, $3.00. A complete Directory of Cotton, Woolen, Knitting, Silk, Flax and Jute mills of the United States and Canada, together with the Dyeing and Finishing Works, Bleacheries, Print Works and other Textile Establishments; about 9,500 in all. Full information is given about each mill.

Vest Pocket Editions of the Directory are published in three sections, viz.: the New England States and Canada; Middle Atlantic States; Southern and Western States. The price of these is $1.50 per section.

Directory of Textile Merchandise

A directory of over 15,000 names of textile products with descriptions, first-hand distributors, etc. Tells whether trademark or brand name has been registered. Also has a classified list which gives all the brands of each product. A directory of decided value to buyers of textiles and all those who have occasion to refer to textile brands or their owners. Postpaid, $5.00.

American Directory of the Knitting Trade

Published annually in a handy size for the pocket, $2.00. Full reports of every knitting mill in the U. S. and Canada, giving capitalization, officers, buyer; goods made; knitting machines, whether latch or spring needle; sewing machines; whether the mill dyes or bleaches or finishes; kind of power; selling agent; kind of yarn bought; jobbers, selling agents, department stores and large retailers handling knit goods and the name of the buyer.

Book Department

We carry in stock for sale all up-to-date textile books published in the English language and will send catalog free upon request.

From the Publishers

Just Between Us

What is it that makes possible an issue like this Annual Review and Forecast Number?

First of all it is the textile industry—the American textile industry. Here we have an invested capital totaling $3,044,207,223. This is a stupendous figure even when thought of in terms of war finance. It is equal to the total land value of the State of Iowa plus 7,025 square miles of Illinois. The U. S. Bureau of Census gave the value of textile mill products for 1919 as $5,127,432,000. This represents a growth of 500 per cent. in twenty years. The last Official American Textile Directory reported 9,767 textile mills of all kinds and sizes in the United States. Textile mills consume more horse power per annum than any other American industry. There is a larger number of big manufacturing units than in any other industry—taking as a basis plants employing over 250 hands.

Don't you think, then, that the textile industry deserves to be represented and served by the very best technical and business paper that can be produced?

To go back to our original question, we believe that the second most important thing that makes this issue possible is the spirit of progressiveness which characterizes American business and industry. This demands cooperation, team work, communication, and interchange of ideas. These are the very foundations of modern industrial journalism.

Third, and last, is the organization which produces the business paper. We are certain that few readers of business papers appreciate the size and complexity of the organizations which produce them. Each organization is a network of specialists—technical editors, news editors, market editors, correspondents, advertising men, copy writers, artists, statisticians, subscription specialists, accountants, clerks, make-up men, and finally the manufacturing plant or print shop which has its own production problems the same as any textile mill. And in this connection we must not fail to mention the associations of business paper publishers which have done so much to raise the standards of the business to a point where American industrial papers have no equal in the world—such associations as the Associated Business Papers, Inc., whose requirements for membership call for audited circulations and adherence to the highest code of business ethics ever constructed.

In addition to the primary function of publishing, the business paper organization is called upon for many other types of service. It may interest some of you to know that TEXTILE WORLD's technical department last year answered individually over 3,000 questions pertaining to mill operation, processes, management, etc. In addition to these we received and answered over 4,000 questions of a commercial nature, having to do with the purchasing of materials, yarns, goods, machinery, supplies, and kindred subjects. This does not include the many telephone requests for information received daily. Many hundreds of market surveys and sales plans are made and devised during a year for firms who seek a market for their products among textile mills.

This little bit of autobiography is not offered in the spirit of egotism, but merely because we believe that a better understanding of each other will do us both good. It is a part of our business to understand your problems. A better understanding on your part of our function will enable you to make better use of the services we are equipped and anxious to render.

OF THIS ISSUE 10,300 COPIES WERE PRINTED

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